THE BUILDER

VOL. C.—No. 3547. JANUARY 27, 1911.

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R.I.B.A. Tite Prize Competition:—

The Prize Design. By Mr. G. H. Foggitt.

Design awarded Certificate of Hon. Mention. By Mr. W. G. Newton.

Fig. 3. Turin Exhibition: British Section.

TURIN INTERNATIONAL EXHIBITION.

TAKING its name from the ancient Ligurian race, the Taurini or Taurisci, the city of Turin dates back to the early days of Rome. Captured by Hannibal in the year 218 B.C., it became a Roman possession, and, after many vicissitudes, was made the capital of Piedmont by Amadeus, the first Duke of Savoy, subsequently passing into the hands of the French with other possessions of the reigning family, and finally restored in 1814. Turin remained the capital of the States of the Dukes of Savoy and Kings of Sardinia until its recognition as the capital of united Italy in 1861, when the first National Assembly declared Victor Emmanuel II. as King of Italy. Although superseded since 1870 as the seat of government, Turin is still the capital of Piedmont, an important strategical position near the northern frontier, and a flourishing industrial centre.

As a worthy representative of Italian industrial enterprise, Turin possesses special qualifications for the organisation of the International Exhibition of Industries and Labour, which, together with the International Exhibition of Fine Arts in Rome, will this year commemorate the Jubilee of United Italy.

But the city possesses the further recommendations of an excellent geographical situation and an unequalled site for exhibition purposes. Being on the main line between Paris and Rome, and readily accessible from all parts of the world, it may well be said that all roads lead to Turin. As for the actual site of

LONDON.—For road-making, etc., at part of Pigwell-path, Hackney, N.E., for the Borough Council. Mr. Norman Scorgie, M.Inst.C.E., Borough Engineer and Surveyor :—

—	If the ordinary Edge Kerb and the Flat Channel are of:—				
	Norwegian Granite.	Cornish Granite.	Irish Granite.	Guernsey Granite.	Leicestershire Granite.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
A. T. Catley	420 0 0	440 0 0	470 0 0	408 0 0	439 0 0
G. J. Anderson	414 1 2	410 11 2	409 1 2	422 6 2	431 11 2
T. Adams	413 15 6	411 15 6	410 5 6	423 15 6	424 15 6
W. Griffiths & Co., Ltd	401 2 1	399 13 3	—	410 11 1	—
E. T. Bloomfield	389 16 5	—	—	—	—
G. Porter, 54, Millfields-road, Clapton, N.E.	384 5 11	386 12 2*	393 10 11	393 13 11	395 18 0

FINCHLEY (Middlesex). — For construction of Naylor-road, with soil and surface-water sewers, for Messrs. Melhuish & Waterer, of Woodside Park. Messrs. Charles Sparrow & Son, surveyors :—

E. Parry & Co.	£2,142 0 0	O. T. Gibbons..	£1,563 14 2
T. Adams	1,701 0 0	R. Ballard	1,460 0 0
W. Smith & Sons	1,596 13 8	J. C. Trueman, Ltd.	1,434 11 3

ISLE OF WIGHT.—For constructing waterworks at Niton, Whitwell, St. Lawrence, and Godshill, for the Rural District Council. Mr. T. R. Saunders, A.M.Inst.C.E., Engineer, Ventnor :—

J. A. Ewart, 21, Old Queen-street, Westminster, S.W.* £5,475

[Sixteen tendered.]

NORTH SHEEN.—For constructing surface water sewer in Mortlake-road, for the Richmond (Surrey) Town Council. Mr. J. H. Brierley, Borough Surveyor :—

Muirhead & Co., Queen Victoria-street, E.C. £762 8 6

RAYLEIGH (Essex).—For the erection of a villa at Rayleigh, for Mrs. C. E. Norton. Mr. Edward Brown, architect and surveyor, 31, Gunton-road, Clapton :—

A. Baker, Thundersley* £356

SCARBOROUGH.—For constructing an engine house, etc., at the Cayton Bay Pumping Station, for the Water Committee. Mr. W. Millhouse, Water Engineer, Scarborough :—

W. Atkinson & Son	£1,035	F. W. Plaxton	£808
Hunter & Smith	1,006	Carr & Creaser	788
T. B. Jowsey	966	H. Hovington	784
R. Watkinson	941	J. Bastiman & Son, Victoria-road, Scarborough*	777
Jaram & Son	904		
W. T. Petch	850		

SHERINGHAM.—For making-up private streets in the district, for the Urban District Council. Mr. F. Hall Smith, Surveyor to the Council. Quantities by Surveyor to the Council :—

	Priory-road.	Montagu-road, etc.
Road Maintenance Co., Ltd.	£493	£632
Blyth & Son	512	562
C. A. Sadler	499	553
J. W. Weston	439	555
E. Edwards	416	533
Chapman & Co.	413	526
E. Howes, Norwich*	397	506

SHERINGHAM.—For the erection of new Council Offices, for the Urban District Council. Messrs. Stanley, Simons, & Co., Architects, Sheringham. Quantities by Mr. F. Hall Smith, Surveyor, Sheringham :—

J. W. Neale	£1,800 0	A. Chapman	£1,597 0
Bullen	1,682 0	Podd & Fisher	1,540 0
J. W. Weston	1,675 0	Anderson & Son	1,526 0
J. W. Porter	1,657 5	Blyth & Son, Sheringham	1,327 0
Kidman Bros.	1,650 0		

SOUTHALL.—For making-up George-street, for Southall-Norwood Urban District Council. Mr. Reginald Brown, A.M.Inst.C.E., F.S.I., etc., Engineer and Surveyor to the Council :—

R. D. Swanker	£356 8 11	F. Tyler	£370 13 8
E. Free & Sons	346 11 1	J. Mowlem & Co.	327 0 0
J. C. Trueman	313 13 3	A. & B. Hanson*	311 0 0

SOUTH MOOR.—For forming and completing of private streets, also laying glazed fireclay pipe-sewer, for Stanley Urban District Council. Mr. Joseph Routledge, Surveyor to the Council :—

R. Hudson & Son	£2,070 11 2
Crombie & Son	1,983 17 6
G. W. Armstrong	1,684 0 0
F. Sowerby	1,636 18 1
E. M. Dyson	1,538 3 11
J. W. Henderson	1,514 0 0
G. E. Simpson	1,497 18 10
J. McLaren	1,429 19 6
Johnson & Strong, Stanley, S.O.*	1,410 17 0

For Drain.

J. McLaren, Gosforth £95 10 0

SURBITON.—For the construction of about 5,000 lin. yds. stoneware, cast-iron, and concrete pipes, with manholes, etc., for the Urban District Council. Mr. Henry T. Mather, Surveyor to the Council :—

E. & E. Iles, Wimbledon £8,127

[Engineer's estimate, £8,973 14s. 2d.]

TOOME.—For the repair of Toome Weir, including the removal of about 267 lin. yds. of the existing timber crest, and the substitution of a reinforced concrete crest, for the Lower Ban Navigation Trustees. Messrs. Swiney & Croasdaile, MM.Inst.C.E., Belfast :—

W. Moss & Sons	£9,000 0 0
G. Lawson & Son	2,115 0 0
I. & W. Stewart	1,729 17 6
R. C. Brebner & Co.	1,256 10 6
J. M. Nally, Cookstown*	1,200 0 0

[Engineer's estimate, £1,330.]

WIGAN.—For the construction of dressing boxes, etc., at the Public Baths, Millgate, for the Corporation :—

D. A. Ablett, Sovereign-road Saw Mills, Wigan* £485

WINLATON.—For levelling, paving, metalling, etc., eleven streets, for the Blaydon Urban District Council. Mr. George Symon, Surveyor. Quantities by Surveyor :—

Rule, Hadfield, & Co.	£2,240 6 0
E. R. Davison	2,056 14 10
A. Tench	2,030 8 10½
T. Dorin	2,021 3 2
J. Friend & Co.	1,946 8 6½
J. J. Robson	1,725 13 8
G. Armstrong	1,623 19 5
Hope & Bunch	1,555 17 0
J. W. Henderson, Gosforth*	1,339 2 9

[Surveyor's estimate, £1,494 12s. 7d.]

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(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
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London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

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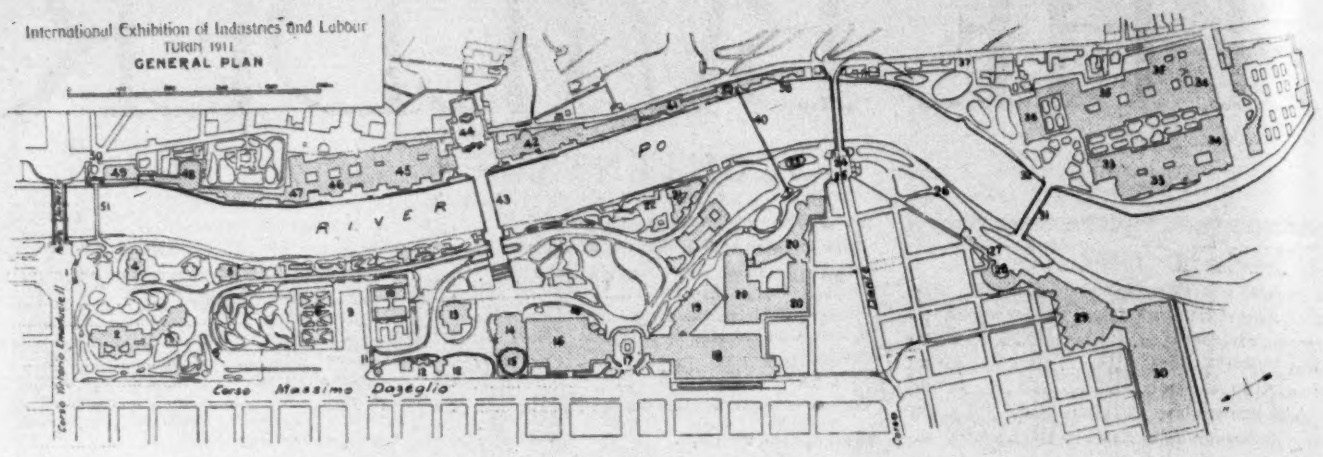


Fig. 1.

1. Main Entrance.
2. Industrial Art.
3. The Modern Town.
4. Fashion.
5. Hungary.
6. French Colonies.
7. Fishing Aquarium and Hunting.
8. Botanic Gardens.
9. Castello Valentino.
10. Aeronautics.
11. Entrance.
12. Executive Commission.
13. Social Economy.
14. Musical Instruments.
15. Hall of Festivals.
16. Electricity.
17. Prince Amadeus' Entrance.
18. Machinery.
19. Typography.
20. British Section.
21. British Colonies.
22. Mediæval Castle and Village.
23. India.
24. Subway.
25. Entrance.
26. Attractions Park.
27. Province of Turin.
28. Restaurant.
29. Italian Public Works.
30. Railway Material.
31. Temporary Bridge.
32. Motor-boat Pier.
33. Manufactures.
34. Agriculture and Agricultural Machinery.
35. Army and Navy.
36. Italians Abroad.
37. Entrance.
38. Servia.
39. Siam.
40. Aerial Electric Railway.
41. United States.
42. Germany.
43. Monumental Bridge.
44. Water Palace.
45. France.
46. Belgium.
47. Brazil.
48. South American States.
49. Argentine.
50. Entrance.
51. Temporary Bridge.

the exhibition, this is provided by the extensive public gardens, known as the Parco Valentino, on the western bank of the River Po, and a long strip of land on the eastern bank. Extending for about 1¼ miles southward from the Ponte Umberto I., carrying the Corso Vittorio Emanuele II. across the river, the exhibition grounds slope down to the placid surface of the water, and provide an agreeable setting of trees and shrubs for the numerous buildings, whose whiteness would otherwise be painfully conspicuous in the bright sunshine of Italy.

Most of the buildings destined to be occupied by foreign countries extend along the eastern bank of the river; while about 500 ft. from the western bank and 35 ft. above water-level the British Section stands in a commanding position, overlooking the greater part of the exhibition grounds, the prospect being completed by the hills stretching away towards the south-east. In addition to the natural beauties of the exhibition grounds and immediate vicinity, the surroundings of Turin are most picturesque. On one side are the snow-clad peaks of the Alpine range, on another the Maritime Alps, on yet another the Ligurian Apennines, and on the fourth stretch the fertile plains of Lombardy.

The exhibition whose situation we have described was projected in February, 1907, with the sanction of King Victor Emmanuel III., the leading spirit being Senator Villa, who organised the Turin exhibitions of 1884, 1898, and 1902, and the Italian Sections in the Paris Exhibitions of 1889 and 1900. The official architects, Signors Fenoglio, Molli, and Salvadori, have based their designs mainly upon the architecture of Piedmont at the beginning of the XVIIIth century, but, as may be gathered from some of the photographs reproduced as illustrations, the modern "Exhibition Style" is by no means lacking. The architecture to which attention has been more particularly devoted is that of the Abbé Juvara (1685-1736), some of whose chief works are the Palazzo Madama, first erected in the XIIIth century, the Palazzo di Giustizia, the churches of San Filippo, Carmine, and Santa Croce, and the Royal Basilica of Superga.

In Fig. 1 will be found a general plan of the exhibition, showing the positions of the principal buildings and other structures. The total area of the grounds amounts to 1,200,000 square mètres, of which more than 300,000 square mètres are covered by buildings. Only two permanent bridges cross the river, one the Ponte Umberto I., and the other the Ponte Principessa Isabella. Additional means of cross-river communication are now provided by the Ponte Monumentale between the two permanent structures, a temporary bridge near the southern end of the exhibition, a footbridge close to the Ponte Umberto I., and an aerial electrical railway near the Ponte Principessa Isabella. As the river is very shallow in this reach, it has been dredged, and the water-level raised by dams to improve the outlook generally and to provide for a service of motor-boats as well as for nautical displays.

The Ponte Monumentale is a timber double-decked structure of five spans about 300 mètres long by 25 mètres wide. As shown in Fig. 2, this work is of substantial character. The upper deck is intended for foot traffic, and the lower deck provides accommodation for moving platforms on which passengers who like semi-obscurity and noise will be enabled to avoid a pleasant walk in return for a small payment. The photograph shows the bridge under construction; the exterior will be decorated in approved exhibition style.

In order to gather a general impression of the exhibition as a whole, let us make a brief survey, starting at the main entrance at the end of the Corso Vittorio Emanuele II., only a short distance from the Central Railway Station. On entering, the visitor finds to the left the Palace of Fashion, a comparatively small building amid pleasant surroundings, and on the right the Palace of Industrial Art, which, with an annexe, covers some 9,000 square mètres. The Hungarian Pavilion, with one façade along the river

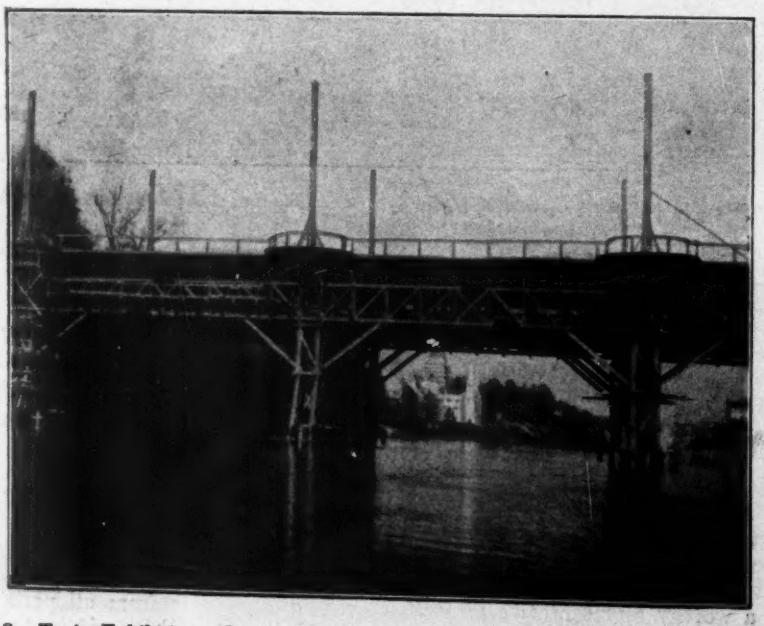


Fig. 2. Turin Exhibition: Ornamental Bridge in course of erection across the River Po.

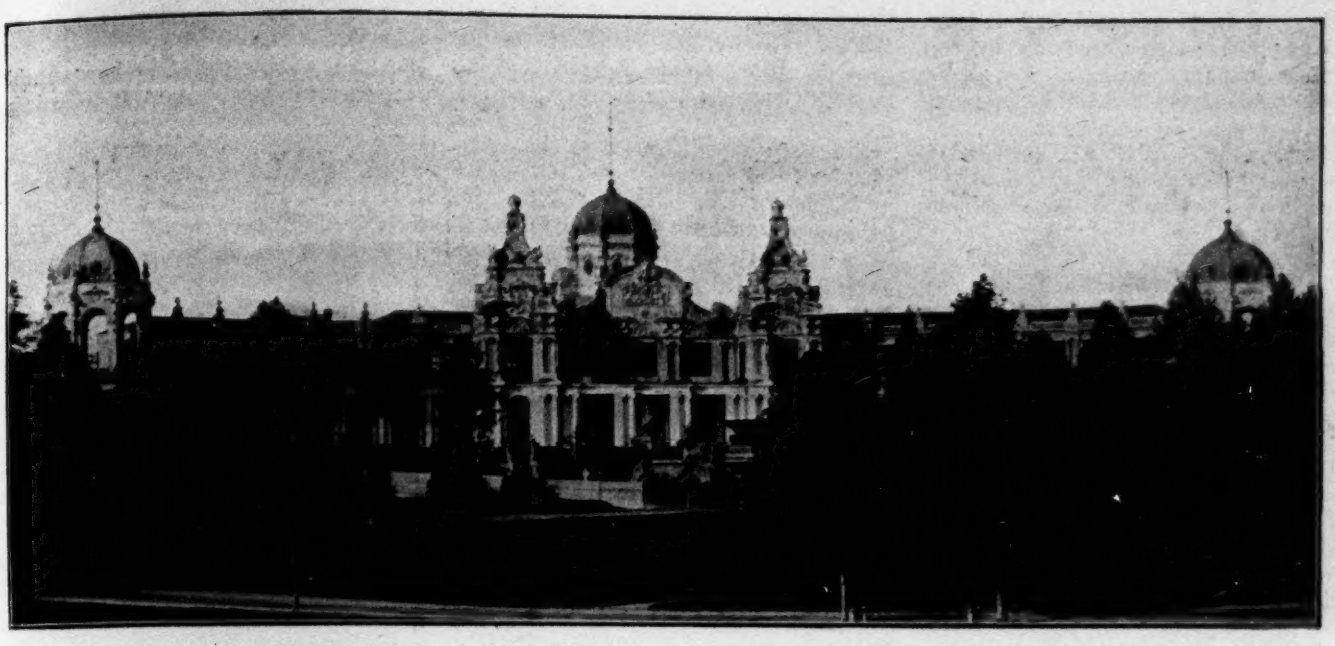


Fig. 4. Turin Exhibition: British Section.

front, is opposite the Botanic Gardens of the Royal University, and next to these is the Castello del Valentino, a massive structure built in 1650 by Marie Christine of France, and now occupied by the Royal Polytechnic School. Next in order come pavilions devoted to various subjects, such as aeronautics, social economy, and musical instruments, adjoining the last of these pavilions being a fine Festival Hall, with a cupola 60 mètres high. These two buildings cover an area of 10,000 square mètres. In front of the Musical Instruments Pavilion are the monumental stairs giving access to the new bridge across the Po, the bridge leading up to the Water Palace, which stands 80 mètres above the river, and provides water for an effective series of cascades. The Palace of Electricity, about 170 mètres long by 100 mètres wide, includes three spacious bays for the exhibition of electrical machinery and appliances, and has accommodation on an upper floor for educational purposes. This building is an example of steel construction, chiefly noteworthy for excellent lighting and the manner in which the supporting columns and other details have been designed so as to reduce to a minimum all obstructions to the view of visitors. The Palace of Electricity is built on the site of an ornamental sheet of water which has been drained and filled in. Consequently it was necessary to make special provision for the foundations by sinking concrete piers to a considerable depth, these piers supporting the main columns of the steel frame.

At the corner of the Corso Massimo d'Azeglio and the Corso Raffaelo there is an imposing entrance constituting the principal way into the central part of the exhibition. Inside the barrier is a spacious square bounded on three sides by handsome arcades giving access to the Palace of Electricity on the left and the Machinery Hall on the right, while the middle of the square is occupied by a monument surmounted by an equestrian statue of Prince Amadeus executed in 1902 by Signor Calandra, the sculptor.

The Machinery Hall, which we enter next, is of about the same area as the Palace of Electricity, although of different shape, and includes spacious galleries, more than 200 mètres long, for the display of machinery in motion, this section being open to all nations.

The adjacent Palace of Typography is noteworthy as being the only reinforced concrete building in the exhibition grounds. The designer has evidently made a bold effort to break away from traditional design, and in this he has certainly succeeded, but with somewhat disastrous results from the artistic standpoint. Nevertheless, there are several features in the building that will repay examination, those of special interest structurally being examples of arch and dome construction. The Palace comprises a large central hall 80 mètres long by 26 mètres wide, surrounded by galleries and other apartments. It covers some 9,000 square mètres, and will remain in the Parco Valentino as a permanent structure, and, we fear, not as a very alluring advertisement of reinforced concrete in architectural practice.

Emerging from the Palace of Typography and turning to the right, the visitor comes to the principal façade of the British Section, an isolated group of buildings erected by direction of the Royal Commission appointed in March, 1909, by King Edward VII. The section covers an area of about 26,000 square mètres, and certainly occupies the finest position in the exhibition grounds. Figs. 3 and 4 give an excellent idea of the architectural treatment, and in the latter may be seen the Neptune fountains, which constitute an appropriate feature opposite the centre of the crescent-shaped façade, with a graceful sweep 650 ft. long, terminated by domed loggias. The main towers are 150 ft. high, and the central dome rises to the height of 200 ft.

Ample accommodation for exhibitors

Fig. 5. Central Gallery of British Machinery Hall.

is provided in the central hall and its flanking galleries, as well as in the spacious buildings behind. The latter include a machinery hall 158 ft. long and two other galleries of similar size, the general character of the construction being illustrated in Fig. 5, which represents the central gallery of the British Machinery Hall.

The administration of the section is in the hands of the Exhibitions Branch of the Board of Trade, by whom every possible arrangement is being made for the convenience of exhibitors, the facilities offered by this new and energetic department even extending to the provision of showcases and stands designed to harmonise with the architectural treatment of the buildings.

Along the river front below the British Section are pavilions occupied by the Indian Empire and British Colonies, and close to the latter will be found the Mediæval Castle and Village built for the Exhibition of 1884. During the exhibition visitors will have the opportunity of seeing artizans and others dressed in the costume of the Middle Ages engaged in the industries for which Turin has long been famous.

Passing next through a subway beneath the Corso Dante and resisting the temptations of the Attractions Park, we come to a range of buildings destined for the City of Turin, the Italian Public Works Department, and Railway Material, and then crossing the river by one of the new bridges we enter the Pilonetto portion of the grounds, where a group of buildings, covering some 60,000 square mètres, will provide accommodation for General Industries, Agriculture and Agricultural Implements, the Army and Navy, and an interesting collection of exhibits from Italians abroad. Although relegated to a somewhat out-of-the-way corner, these buildings represent more than a fifth of the covered surface of the exhibition, and their contents will be of much importance from the Italian standpoint.

On the farther side of the Ponte Principessa Isabella is a long range of handsome buildings allotted to various foreign countries. In Fig. 6 may be seen the German Pavilion terminating near the new Monumental Bridge, and behind it the skeleton framework of the Water Palace. The German section covers an area of 10,000 square mètres, and its façade extends for 250 mètres along the river side.

The French pavilion, covering 13,990 square mètres and measuring 193 mètres long, represents the national architecture, with a strong flavour of the style pervading the exhibition generally. The central portion of the building includes a spacious hall, surmounted by a cupola 50 mètres high, and from it radiate the galleries devoted to various branches of French industrial enterprise.

Fig. 7 shows the river front of this building, just beyond which is the Belgian Section, with the ground area of 6,000 square mètres, the building being suggestive of Flemish architecture.

The pavilions of various South American States close the vista on the farther side of the river, the whole range of buildings forming a single harmonious line, although to some extent indicating the architecture of the countries to which they are allotted, and being generally in far better style than the buildings to be found at most international exhibitions.

In conclusion, we give a few brief particulars of the Stadium, which, although outside the boundaries, will form a useful adjunct to the Turin Exhibition. The structure is of monumental character, and was erected last year on the old Piazza d'Armi, not far from the Corso Vittorio Emanuele II., from the architectural designs of Signor Ballatore di Rosana and the engineering drawings of Signor Gonella, both pupils of that master, Conte Carlo Ceppi, to whom Turin is indebted for many of its architectural beauties. The builders were the well-known contracting firm of Porcheddu, and the work is mainly on the Hennebique system of ferro-concrete.

The Turin Stadium is longer than the temporary structure at Shepherd's Bush, and, covering an area of more than 100,000 square mètres, will afford seating accommodation for 40,000 persons and standing room for 30,000 more. The encircling ring of sloping stages is broken at intervals by towers, and opposite the monumental entrance is a pavilion, the whole being treated in classic style.

In the spacious arches beneath the seats, halls and galleries are provided for use as skating rinks, gymnasiums, fencing-courts, restaurants, cloakrooms, and other auxiliary purposes.

In the arena there are three tracks: One, 2,230 ft. long, for cycle races; another in the form of the figure 8, and 2,380 ft. long, for equestrian competitions; and a third, 1,520 ft. long, for foot races. Spaces are also reserved for wrestling, archery, lawn-tennis, and other sports.

Being of substantial construction and of material which present experience indicates to be of imperishable nature, the Stadium will probably be cited hereafter by the coming race as an illustration of the enduring buildings erected in the remote days of the XXth century.

NOTES.

Elections at the Royal Academy.

MR. FRANK SHORT, promoted to be an Engraver Academician, began life as an engineer, and from 1883 to 1904, when he resigned, he was an Assoc.M.Inst.C.E. Last year he succeeded Sir F. Seymour Haden as President of the Royal Society of Painter-Etchers, and he is Director of the Etching and Engraving Class at the Royal College of Art. His original work, inspired by scenes on the Thames and the Wandle, at Rye, Whitby, Bosham, and elsewhere, is remarkable; and his mezzotints after Turner, de Wint, and Watts have earned for him an enduring reputation. His water-colours are very interesting. Mr. C. H. Shannon, elected A.R.A., has been called the English Giorgione. Apart from his paintings, which are distinguished in character and technique, he has been instrumental in drawing attention to the subsidiary arts of lithography and woodcut illustration. With Mr. Charles Ricketts he published from the Vale Press, now defunct, that rare and beautiful periodical, "The Dial." An example of his work was bought recently for the Manchester Art Gallery, and he is represented in many Continental National Galleries. Of Mr. Mark Fisher, another new A.R.A., a recruit from the New English Art Club, Mr. George Moore once wrote, "He is certainly our greatest

Fig. 6.

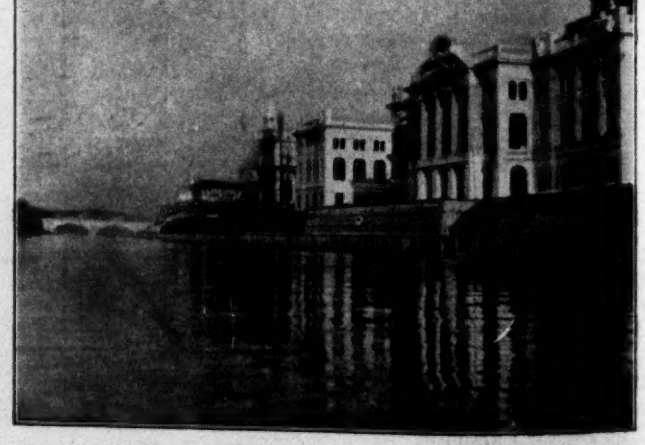


Fig. 7.

Turin Exhibition: Foreign Government Sections.

living landscape painter." For many years the artist has maintained a prominent position as an exponent of the sunny side of landscape, and his animal studies are excellent. Connected, like Mr. John S. Sargent, R.A., with Boston, U.S.A., Mr. Fisher studied in Paris. Returning to America he found so little appreciation there that he came to England, and eventually settled in Essex.

Sir William Eden's View.

SIR WILLIAM EDEN, in a letter to the *Evening Standard*, makes it known to the world that he has suffered from a fit of depression. We tender our condolence. Would that more laymen, even among artists, were disgusted by the spectacle of the streets of London to-day, to the point of writing, as Sir William has done, after first being moved to expression in words not seemly to print. We say, "as Sir William has done," advisedly. We like his opinion. After invective, fitly directed, he protests :—

"And yet there is the example of Boodle's Club to follow, and though not so beautiful, still quite pleasant, Brooks's, Arthur's, the Devonshire, and White's.

Further on, in Pall Mall, the Automobile Club have put up quite a handsome front, but why, oh why, deface the capitals with Early Victorian ringlets?

Waterloo-place is doomed, Regent-circus defaced, Bond-street impossible."

Of Bath he writes :—

"Queen's square is quite a model; but it is ruined so far as it can be by the introduction of plate-glass windows. This has been done all over Bath. Here and there a sacred bit remains, where someone fortunately could not afford, perhaps, the expenditure of the change.

There you have the Georgian windows, with their smaller panes."

And again :—

"Such beauties as these were, one would suppose, quite obvious. But no! Here in Bath they have put up a thing called the Empire Hotel, for all the world like a German sanatorium, of which I have seen one specimen, which is almost exactly the same. And yet I'm told the architect lives in Bath."

And finally :—

"Is beauty really a thing so abstract that it must always remain a matter of opinion to be decided by a local parish council? Cannot, somehow, an accepted precedent be realised and enforced? Is there any sorrow like unto this sorrow—that the progress of civilisation is the decay of taste?"

No, assuredly. As to the penultimate sentence, his petulant "cannot . . .?" we must confine ourselves to endorsing the desire that a precedent—*the right one*—might be accepted or realised, it is the same thing. But the matter of enforcement is dangerous.

Accommodation for Witnesses at Law Courts.

THE discussion in the Press on the accommodation provided for witnesses at the Royal Courts of Justice will call public attention to the subject generally. All persons whose attendance is required at a court of justice—whether a witness or a party—and who has to wait, should be provided with proper accommodation, not limited to a bench or a chair. Business men ought to be able to write letters or have interviews. If, for example, an architect is summoned in a light-and-air case which is low in the daily list, so that he has to spend the largest part of the day in waiting, accommodation should be provided so that he may conduct some at least of his correspondence, and be able to interview a client if this is urgent. At present the so-called accommodation is antiquated and inconvenient, and the necessary duty of appearing at a court of law is made as troublesome as it can be. Whether it is possible to improve matters at the Royal Courts of Justice can only be decided after a careful inquiry; but some such inquiry ought to take place, and we should also like to see the matter taken in hand all over the country. It must be admitted that some of the provincial courts are in this respect far in advance of Street's building in the Strand.

Chapel Royal, Stirling Castle.

A SUB-COMMITTEE of the Edinburgh District of the Scottish Ecclesiological Society has been formed to frame a petition to his Majesty's Government in relation to the current neglect and misuse—as a store and refreshment-room—of the Chapel Royal of Scotland in Stirling Castle. The chapel forms the north side of the upper square and adjoins the Douglas Room—the scene of the death at the hand of King James II. of William, Earl of Douglas. It was built to replace the Chapel of St. Michael, by King James VI. in 1594, for the baptism of his elder son Henry. The castle was a stronghold of King Alexander I., who died there in 1124; from his day the castle chapel has been essentially the Chapel Royal of Scotland, and the petitioners will urge that the building may be reinstated and be returned to its ancient and sacred uses.

The Institute of Builders' Dinner.

ON the occasion of the annual dinner of the Institute of Builders some interesting and suggestive speeches were made, a report of which will be found in our Building Trade Section this week. Mr. Higgs, the President, gave a short account of the history of the Institute, and he and others referred to the vexed questions of Sub-contractors and Specialists, and to the proposals now being made to revive the apprenticeship system. The excellent remarks by Mr. Romaine Walker included some sensible observations on the question of the employment of sub-contractors, and may be regarded as a useful contribution to the recent discussion of the subject in our pages. We do not suppose the most sanguine builder expects the specialist to be abolished, but no doubt he hopes, and rightly, for some alteration in the relationship of the specialist to the general contract and the contractor, by which the general contractor shall have more efficient control of, and financial interest in, the work carried out by the specialist. As to the question of the revival of the apprenticeship system, it has been evident to us for some time past that the matter would receive the serious consideration of the employers of the country, and in the near future we are likely to hear a great deal about it.

A DECEASED BUILDERS' MERCHANT'S ESTATE.

The estate of the late Mr. Henry Lawford, of Camden-road, N.W., partner of Messrs. Lawford & Sons, builders' merchants, who died on November 23, aged fifty-six years, is proved as of 43,132*l.* 15s. 7d. gross value, with 40,806*l.* 10s. 5d. net personalty.

COMBINED ORDINARY GENERAL MEETING AND CAMERA, SKETCH, AND DEBATE CLUB.

AN ordinary general meeting of the Architectural Association was held on Monday, at No. 18, Tufton-street, Westminster, S.W., Mr. Arthur Keen, President, in the chair.

The minutes having been read and confirmed,

Mr. E. Gunn, Hon. Secretary, read some nominations, and the following gentlemen were elected as members, *i.e.*, Messrs. W. J. Allcorn (London), C. W. Capes (London), and H. G. Wicks (Cheltenham).

On the motion of the President, a vote of thanks to Mr. Andrew Oliver for presenting to the photographic collection a number of slides and negatives was heartily agreed to. A vote of thanks was also accorded to Mr. Ernest Runtz for presenting to the library thirty-two volumes of the "Revue Générale de l'Architecture," by M. Cesar Daly.

The President called attention to the Life Class. Only three members had joined, and it was necessary that a larger number should do so, or the Council would have to consider whether the class was to be continued in the future; he hoped there would be a better attendance.

Mr. Theodore Fyfe then read the following paper, entitled

THE ATELIER *v.* THE BUILDER'S YARD.

"It is with the greatest diffidence that I bring forward this subject to-night, because I am fully aware that it demands the wisdom and experience of someone much more versed in building than myself; but I have thought it not out of place because we, of the younger generation of architects, must think clearly and reasonably about our art, and have an adequate basis of ordered process in our application of thought to building form, especially now that we are progressing so rapidly with systems of education in this country. The subject is one that is always with us. My first personal recollection of it dates from about 1898 or 1899, when Mr. Harry Wilson read a paper, followed by considerable discussion, at the Architectural Association. Then, as now, we had our Philip Webb and our Lethaby, and these have a considerable following in these times. On the other hand, we have had, for a much longer period, the great academic teaching of France, forming what I signify as the "atelier."

Craftsmanship.

Subsequent to 1898, there are only two utterances that I will draw attention to, though, of course, there have been many others. The first is a paper, entitled "A Review of the Tendencies of the Modern School of Architecture," read before the Institute by Professor Pite in 1900, and the second is a very recent paper, "Architecture or Building," read at Birmingham by Mr.

Schultz. I do not intend to refer to either at any length, but will take Mr. Schultz first. Referring to day-school training, he says:—"I must say quite frankly that, in my opinion, this theoretic training is not going to make for good building; in fact, to be quite candid, I am not hopeful that a good general type of modern building will be seen until all we architects are abolished, swept away, root and branch." And then he goes on to say that the *craftsman* could, and should, be taught to do the architect's work in addition to, or as part of, his own. Further, he says, "meanwhile I would plead for a practical basis in the training of your youths. Send them first to do work and see work done, and to learn and know about the nature of materials, and their putting together; teach them architecture as engineers are taught. Don't bother too much about design."

The first part of this quotation is quite too big a subject to discuss here. I would only say, what about the interregnum if architects are to be swept away? And, supposing that could be bridged, would we not find that our great modern buildings would, of necessity, fall into the hands of engineers, with craftsmen to work for them merely as superior decorators? I say "of necessity," because it is surely inconceivable that craftsmen could be entrusted to take up the problems of design, in its larger sense, involved in our great modern buildings. They might *contrive* fine bits here and there, even whole departments of a large building, which, when one thinks of it, is perceptible in a lot of old work; but one could surely get no great building, fine throughout, on such principles?

Now let us turn to Professor Pite's paper. He discusses precisely the same question, a possible revival of the crafts for all practical building needs; but he finds no solution therein. He admits that the minor or "decorative" building crafts are already on a sound footing, thanks to William Morris chiefly. "But" (here I quote him) "the major crafts of building construction are still outside the pale of their decorative sisters, and, indeed, are dependent on the master-architect's training, and upon his paper and pencil, for their usefulness or their beauty. We observe the signs of revivification in subsidiary cases; are there not prospects and hopes for the greater ones?" He sorrowfully admits not, and says later, in words which I would have you specially note:—"The architect, whether he wills it or would have it otherwise, is compelled back upon himself and upon his own intuition and experience, for all discernment and expression of the material and its craftsmanship. The architect at the present day is indeed the designer and master-craftsman. He goes backward to the status of the actual workman to bring his work forward to the point of true architecture."

The Academic and the Practical.

I think we will all agree there can be no real building without precise and intimate knowledge, and I would further submit there can be no great building, that we call architecture, without a wide knowledge of tradition and example. The big man is not confused and crowded out in knowing all he can that assists his work, and in seeing all he can that has been done elsewhere. We can have no great national style without first having international experience. The only true receptivity is that of the large, healthy, creative mind. Recognising this, one feels it impossible to tie oneself down to either an atelier or a builder's yard. In the Paris Opera House, certainly one of the greatest buildings of modern times, we see the perfect flower of the system that produced great Prix de Rome men; we see a modern academic design, a design founded on the approved training of the schools in France; but we see much more than this, nothing less than a great building that any builder, properly so-called, who loves his craft, would joyfully participate in; and we see a thing beautiful as an organic whole, within and without, the marvellous creation of a truly great architect. The academic and the practical must co-operate to produce such a building as this.

Old Work.

In any consideration of this subject one is bound to come full tilt against old work. Its claims are always sufficiently in evidence, and need no apology. It is right thinking about it in the mind of the student that is essential. On the one hand, he must recognise that we have lost tradition in the sense that the great mediæval builders had it. Nothing could have produced such great works as the west front of Rheims except a religion that was childlike in its trust and firm faith—we dare not believe anything else—and an instinctive hold on tradition. Perhaps it is because we have lost both, in the sense of the earlier builders, that we are utterly unable to clearly comprehend how their greatest works were raised, and flounder about between the one-man theory and the theory of the many workers, more or less inspired. We know that we find it supremely difficult, if not impossible, to do similar work that has the same extraordinary homogeneity and singleness of tone. So the student should realise what tradition means, and his own relationship to it. On the other hand, he must recognise that the needs of his time demand of him a training in the most frankly intelligent criticism of the whole modern outlook, a criticism which leads to the appreciation of what he has been trained to regard as the *best*. He must realise that his achievement is a thing of thought based on a principle of selection as thorough as it is ruthless; thorough, because he must have principles, the more the better; ruthless, because there is a mass of undesirable opinion hanging about the whole game, something which clouds the issue, losing many a man in shallows, uncertainties, and weak work.

To say about a method of doing something, "This won't be satisfactory, it was done at So-and-so, and was bad," may sound pedantic, but it is in the right spirit. This is the true liberalism of art, which can advance, not because it despises, but because it fears and knows; not contempt, but knowledge, is what we want.

The mass of undesirable opinion before referred to hangs particularly about the subject of old work. Those who make a fetish of it, because it is old work, are largely responsible for this. Setting one's face against such an attitude does not *necessarily* mean that the student is a foolish iconoclast. It is only ignorance that is abusive.

Value of the Atelier.

But, you will ask, what is the training that will enable the student to appreciate only the best, and of what does the best consist? Now, here, I think, is the value of the atelier; for it is only, it seems to me, by some such system as the atelier that we are able to find an answer to this most important question. It is through lack of real, systematic, profitable training in design that most of the educational systems in this country suffer—not so much in design perhaps, as in principles that *govern* design. An architect, I submit, must most emphatically be trained in certain aspects of the theory of his art, just as certainly as the musician. The two arts run parallel, and are very similar in this respect. The gain to the student is immense when one can point out the world that lies before him if he is able to recognise that certain proportions and rules—which are at least as old as the Greeks—are discoverable in all great building.

To the free and elastic mind this will not become a fetish; far from it: it will recognise the limitations of all rules; but, on the other hand, it will gain immensely in stimulus by adding, bit to bit, and will advance thus by real experience. The old weapon, having served its day, will form part of the armoury if it is sound, and be thrown away if it is bad, and a newer and better one will take its place. Here, again, ought to be progress.

"The Builder's Yard."

The study of *structure* is something which appears to be more intensely modern than any other aspect of the question; but is it so very modern, after all? Here is our "builder's yard," but much more. On the one hand, it is all that old work can teach us, as material evidenced in architecture; and, on the other, it is the engineer's table, the plumber's shop, the mason's yard, the multitudinous crafts that appear in a really great building. It is just this about the Paris Opera House that fascinates. This is the ideal, but how seldom achieved! And now, when I speak about the "builder's yard," it is perhaps hardly necessary to explain that I mean by it the extreme that it represents—the view that the young architect must learn to handle tools himself before he can build aright; that he must be a plumber, or mason, or carpenter, and, if possible, all of them, in some measure, if he is to have that intimate knowledge of material that alone produces good work. Here I will state my own position. I recognise that the architect needs this intimate knowledge, this subtlety of appreciation in material; the knowledge that can enable one man to build a beautiful gable in brick while another, with exactly the same bricks and exactly even the same form of gable, produces something which is quite ordinary. But where I demur is in believing that architecture is only this, and that there is not another, and larger, side. To do the exponents of the "builder's yard" justice, it is only the narrower among them who really believe the contrary, or act as if they did. It is this pernicious hatred of the Renaissance, and of all that people are pleased to call sham building (which in some form or other is as old as any building that ever was), this one-legged theory that the column and the order are a damned thing, that is responsible for half the mischief. All building is surely part of one great craft, the greatest constructive craft there is, whether it be evidenced in a Surrey cottage or in Westminster Cathedral: the one is but the other in little. Thought, care, selection, and trained experience are requisite for both, though the relationship of parts to the whole is somewhat different in each. It is at this point that we appreciate the fascination of Professor Lethaby's remark, quoted in Mr. Schultz's paper, already mentioned. "Design," he says, "is merely contrivance, the doing of work in an ordinary way, just like cooking." On the other hand, has not Professor Lethaby been lately much occupied with the principles that underlie Greek building?

Large and Small Architecture.

But though all architecture, large or small, is one craft, it seems to me we must appreciate that large, formal, ordered buildings demand a more rigid preliminary process in the mind of the architect than smaller work does. We in England have lost a tradition of academic style for large buildings. France has retained such a tradition, or at least built up a modern one of its own; but then in England we have a much surer hold on the whole intent and meaning of smaller work, such as domestic and church buildings. Our best work in these directions is not imitative; it is really part of the national life. To design such work there is much to be said for the "cooking" process; but though ordinary *contrivance*, ingenuity, commonsense, are the basis of all design, whether in large things or small, for the great buildings of modern times—our lecture theatres, town halls, art galleries, museums, libraries, flats, railway stations, important commercial buildings—all buildings that can be called monumental, we need, it seems to me, a basic principle, or principles, in our design, and the simplest way I can state it is this: In what way do we relate our processes of thought and draughtsmanship to the actual structure in the execution of large, ordered work? Now, if I may state my own answer, here we want the "atelier," but we want m re;

for the atelier, in these remarks, is only a symbol of modified, not comprehensive power. Nevertheless, we do want the root-principle of it, to my mind, and that alone which can make draughtsmanship the means that it ought to be. We want to begin with our subject at its beginning, to work from small to large, to visualise our subject as a whole, on paper, and to keep scale, proportion, mass, harmony before us all the time. We want to work this out to its utmost possible achievement on paper before we touch anything to larger scale; and so pass on from this, and by means of this, to larger and yet larger, till we reach the "full-size," making innumerable studies—line perspectives, isometrics, diagrams—by the way. Now this, it seems to me, is the true principle and meaning of draughtsmanship in monumental work, and the most certain process for securing good architecture. And the "more" that I have mentioned, what is it? Simply all that we have in our life—the utmost extent to which our character can inform our work. We all know how, after seeing a great picture exhibition, entering some rooms simply irritates us, and entering others pleases and rests. That is just illustrative of character in work, the power that can be gained by one man "thinking back," as Professor Pite says, so that he can truly bring forward.

And so, recognising that the architect, to be capable of tackling big work, must appreciate the big things, as well as all the little things, is it reasonable to expect that he should devote such individual attention to these little things? Here I would not be misunderstood. Far be it from me to suggest that I call anything little, except relatively. The bigger meaning of it all, which is its right relationship to the whole, must all be understood, or at least intelligently grasped; otherwise there could be no Opera House. The multitude of practical details must be studied thoroughly and criticised with that larger view which is only possible to the impartial mind. Such study will become easier as time goes on, and it can be achieved without the drastic method of apprenticing oneself to a mason. Nay, can it even be properly achieved at all by such a method? That, of course, depends upon the man, but should it be necessary to make it a main plank in our platform?

Let us take three great buildings of the past at random, but representative of great periods in building; say, the Parthenon at Athens, Sancta Sophia at Constantinople, and the Farnese Palace at Rome. The two first of these, thanks to the immense value of a traditional style, might have been *contrived* in the sense meant by Professor Lethaby, though each of them is associated with a great master-builder. The Farnese Palace could assuredly not have been so contrived. Begun by Sangallo, it was seized by the giant hand of Michelangelo and reshaped to his embodying. I do not ask you to argue whether or not it has the same intrinsic purity of style that the other examples I have quoted possess. I simply ask you if it is not a noble building. And, since then, has any great building been erected in Europe without one informing mind behind it? This is a lesson that history teaches us, and that we cannot surely ignore? Since then the times have become more and more complex. The days move with breathless haste. Can we afford, as architects, to lose our grasp on the bigger sway? I would not argue for a moment that we should not throw our students as much into the builder's yard as possible. With that part of Mr. Schultz's paper I am entirely in agreement. But does all history, all experience, teach us that harking back to something which has its roots buried in the beginnings of things will be to our advantage? We may bemoan our lack of the sheer wonder in creative building attained by some of the older men, but the remedy must surely be with ourselves, and not with others. There are those among us who are always bewailing the lack of architectural intelligence in the public. To such I would say, "Don't think so much about other people's shortcomings; think more about your own." The public appreciation of architecture is exactly what we architects care to make it. We, and we alone, have to be chiefly responsible for showing the public—whose needs are in the main intelligible, reasonable, and in the majority of cases, absolutely practical—that the best building it can get is the most artistic building, because it is the fittest for its purpose. I believe this can be done if the architect will but put his shoulder to the wheel."

In inviting discussion, the President said it appeared to him that Mr. Fyfe, at the back of his mind, thought that the ideal system of instruction was really that which was followed in the Association Schools.

Mr. W. Curtis Green:

I have listened with pleasure to Mr. Fyfe's paper. Mr. Fyfe speaks with an authority and with a seriousness of purpose that reveal the born architect. I could wish for the purpose of discussion to-night his partisanship for the atelier had been more pronounced, that, in short, his statement was less nicely balanced and less likely to appeal to us all. Now that the best men among us are giving to education the attention that it deserves, when each of us is trying to attain the efficiency and skill which we admire in our friends or in those on a pedestal beyond our reach, it is well to reflect that, though the system is much, it is by no means everything. Those who start life from a pedestal do not always build better than those who have to lay the foundation before they can start building themselves. If it is true that architects are born and not made, it is equally true that they are not born ready-made. It is more than probable that clear thinking will evolve in the near future a system of education that will make some of us regret our own lack of opportunity. But in the end it is the men that matter more than the system; we need the system to raise the whole general average of building throughout the country on to a higher plane; even then it is the full man in whom the root of the matter is planted, who will, whatever his initial mistakes and failures, express in architectural terms the virtue of his time. All of us will be agreed that many of our failures could be avoided by more prolonged training; we are in too much hurry to run into active practice either for financial reasons, or because we are afraid that our friends will not wait for us. Should this additional training be in the atelier or in the builder's yard? In practice the architect must have experienced something of both. So far as the two represent two different schools of thought, I am to-night on the side of the builder's yard. The two schools may, I think, be fairly described as the *real* and the *ideal*; the real standing for the workshop, and the ideal for the studio. I believe that at the present, and for some time to come, our art can be best served from the humbler side. The *realist* argues from nature upwards; starting from reality and never losing sight of it. The idealist argues from an idea already formed; starting from a conception, he argues downwards, rejecting realities where they do not fit in to his preconceived scheme. The *idealist* has the more lofty pretensions, the *realist* achieves the most elevating results. We architects have to look at things as they are, not through the mists of fancy, nor with the eyes of an age now past. Let us regard our work from the point of view of those who will judge it after we are gone and forgotten. What is the standard by which they will judge? If the lines laid down by the architect are the outcome of inspired common sense, a cultivated sense of that line of economy which Emerson has so well described as the line of perfect beauty, if the materials used are suitable, the best of their kind rightly and fitly used and joined together, I can imagine that a building of our day may win something of the respect and affection from those who come after us that we feel for the work of our forbears. Some of us have yet to learn that half of the charm of the historic architecture of this country lies in the materials used and in the skill with which they were laid down. Take a mere brick wall as an illustration. Let him who supposes that he knows everything necessary to produce a beautiful piece of walling try to do so—I do not mean with his own hands; supposing he failed to do so, he might then read Professor Pite's essay on brickwork in the first volume of "Building Construction" in the Architects' Library; let him learn all that is to be learned from that masterly monograph, then let him try again and compare the result with any good piece of old work; let him analyse the result, and his own feelings! Academic architecture fails to win our affection, although it may and does inspire our unstinted admiration and respect. The reason of this is, I think, that the tendency in cold academic design is to overlook the human element in its production. Which moves us most profoundly, the art of the Colosseum at Rome, or the front of Rheims? It is true that our modern methods of building are more akin to Pagan Rome than to Christian Rheims; is that resemblance an ideal to strive for? I believe that the weakness of modern English architecture lies with the producer rather than with the designer. The British working man is the stumbling-block in the path of our best architects. Through no fault of his own, his natural taste for sound craftsmanship has been perverted. He has had set before him the false standard of excellence created by machine labour applied to illegitimate ends. He has learned his lesson thoroughly. The subdivisions of his one-time craft evolved in factories and by trade unions have destroyed both the self-respect and the pleasure which he once derived from his craft. This evil does not imply that we should get back to this or that school or period, or that we should embrace the affectation of a revival remote from our ways of life and thought. I would remind those with a tendency to admire all things old to remember what Wm. Morris wrote, speaking of old buildings. He said "If these buildings are beautiful now in their age, what must they have been when they were new?" To those who believe that the standard of craftsmanship is connected with the well-being of architecture, the detached and superior attitude of the atelier will hold little hope of the future. I am not of those who imagine that drudgery can be done away with; there must be drudgery in the making of every work of art; it is a necessary and a cleansing process. The man who cannot bear his share will produce nothing of value; yet I believe that the architecture that affects mankind most strongly for good has the minimum of drudgery, that it is produced by labour, inspired by a common tradition, emulating that tradition. Let us have a controlling mind. I should imagine that no great performance in architecture was ever without one; but the master workman must have sympathetic tools, keen to respond to his suggestion, not compelled by force or fear. Part of our calling—it should be a self-evident part—is to master our tools. Can the conditions in which our work is carried out be studied in the atelier? Can we influence or direct the man who crystalises our idea until we learn what he has to teach us about the genesis of that idea? Can we design rightly in materials the properties of which we do not understand and cannot learn from books? The whole question of the right and the wrong use of mechanical labour is for us to pronounce on; where can we learn about it but in the builder's yard? I suppose there has never been so much skill at the service of architecture as to-day. In the country it is extraordinary how quickly and with what pleasure the

men on the job respond to the traditional ways of their crafts when they are allowed the chance. We want a living traditional school of modern architecture, and it is coming clothed and in its right mind; our architects must be craftsmen not with their own hands, though a thorough knowledge of the bench or the lathe in their youth will have done wonders for them, but in the sense that they must know that there is a right way of doing a piece of work and a proper use of the materials at hand. If during our student days we are trained to deal with the real things first, not standing aloof from the facts of life, we may come to express in concrete form the ideal to our fellow-men.

Mr. W. H. Ward

said they all seemed to be agreed that tradition of some sort was a necessity—that no great work was done which was not the outcome of some tradition, and that best work was the culmination of tradition. And when people felt that all was not right with the architecture of their day, the only two courses open to them were: to improve on the tradition they inherited, or to go back a little way until they got to a sounder state of it. The only way we could get into touch with tradition now, it seemed to him, was by some system of atelier training. The building art of to-day was so extremely specialised in all its branches that it would be impossible for anyone to go through all the trades, but it would be a great advantage for a man in his youth to have done a little carpentry, or masonry, in order to get conversant with the general principles of them; but it would be impossible for him to practice as an engineer and plumber, and every other branch of architecture that one could think of. The result of atelier training only was one which could be seen if one went through France. One saw little country houses nearly all ghastly failures—either an attempt in the grand manner on a small scale, or an attempt in some awful form of new art.

Mr. W. H. Seth-Smith

said it would be absurd to ignore the mass of past history in studying how best to lay down some guiding principles as to the method by which we should train the youth of the Profession, and it was of great importance in a school like the Association's that the students should feel that these principles had been thoroughly thrashed out and were not merely empirical—that they had been laid down with the greatest care, and that the training would be satisfactory. He differed with Mr. Green as to lofty ideals being questionable. Unless ideals were very high we could not get very high in our work. Mr. Ward's remarks as to the result of a purely academic training, as pursued in the Ecole des Beaux-Arts, were very true, and he fully supported him as to what one saw in going through France. One rarely saw a small building which, from our point of view, was worth looking at, and that could be attributed only to the fact of the French studying in the grand manner to the exclusion of smaller objects—such as cottages and domestic work generally. Foreign architects were unanimous in saying that up to the point of monumental work our English architecture was superior to foreign. The need in the Association was to add to the instruction in smaller work something more on monumental lines. Take town planning; if we were trained in the workshop, were we thereby made more efficient to master the large problems which town planning presented to us? Our powers in that direction would be cribbed, cabined, and confined. He did not know any building carried out satisfactorily by a builder who had not had a theoretical training. The moral of the paper seemed to be to think, think, think, and to ask everywhere: How and why?

Sir Bramwell Thomas

said the two openers started from different points of view, but arrived at almost the same conclusions. Each would agree that both systems should be included in the best definite form of architectural training. But the question of atelier *v.* the builder's yard was almost out of date, and there was considerable agreement to-day in favour of academic training. Up to a point the craftsman was the ruling spirit; but, in spite of what had been said about French cottage work, the necessity had been found for a proper academic training. Why the academic form of training was so satisfactory was that first of all it was a tremendous test from the artistic point of view—practically two years in the Ecole des Beaux-Arts were a test as to whether a man was an artist. The next two years were devoted to a highly scientific study far in advance of what we had here. Between the course of training in France and the training in the Association schools there was a wide difference in the first two years; in France a man was trained in design before he knew anything; here, in England, a man was given a great breadth of scholarship before he came to design. As to what the future held, that was in the lap of the gods, but a strongly-academic training must and would come into force, and it needed serious consideration to say what addition should be made to the education of the architect upon that which has existed for the last ten years.

Mr. Louis Jacob and Mr. G. Drysdale having spoken (Mr. Drysdale remarking that we had far too much taste and too little science),

Mr. W. J. N. Millard

said he stumbled at the title at once. Why *versus?* Why not *cum?* What we had to do was to find the best points of both systems. But as to mastering all the trades, that was a big order. As architects let us hope and pray that we should acquire insight into what had been done—insight leading to foresight concerning what to do; foresight upon which depended so greatly the power to grasp the problems and solve them by the aid of that gift of second sight we call imagination lying at the back of all initiation, reinforcing all firm decision.

Mr. H. P. G. Maule

said the title was misleading, for what did we mean by atelier and what by builder's yard? They did not mean only the one or only the other. After the atelier came something else. We often heard of the atelier, but not of the something else, and we did not hear of a great deal covered by the atelier. Taking the title of the paper, there was every reason for a combination of atelier and builder's yard, if such a term must be used. Hardly one successful and leading English domestic architect of recent times was a craftsman in the sense that he could use the craftsman's tools, but probably all those whose work reached a high level had an intimate knowledge of how the work was done, and for that reason could direct and control; part of the training of an architect must consist in learning something about those trades in order to be able to design at all. Equally important was the careful and systematic training in design, in all the principles which underlay all great architecture. As a race we were very practical, and the best could be got out of a student by approaching the subject from the practical and humble side, and in doing so the higher ideals and big things were not lost sight of, even from the first moment. He thought they ought to avoid such expressions as "training must be academic," because such an expression is open to misinterpretation and misunderstandings. Nor should we only think of foreign work and forget our own and our own requirements. And if we started educating on a too far advanced plane we should put the clock back. We had a lot of ground to cover before we could say definitely what is best for an architectural training in this country.

Mr. D. A. Forster and Mr. P. Cart de Lafontaine having spoken,

Mr. Gerald Horsley

said it would be interesting to know how the student regarded the matter. Twenty years ago it was a question under discussion by students whether they should go from their pupilage into a builder's yard or into an office. A few of his contemporaries at that time decided to start work as architect-builders, and one had given it up and had since worked in architecture, and the others had not had a very wide range of work, though what they had done had been very interesting and sometimes very beautiful. But there was a difference nowadays compared with twenty years ago, for there exists to-day the well-drawn document of the Board of Education which most students took as the lines to go upon. But the document did not go far enough, for it said nothing as to what a student should do after the four years' training. We had no authoritative statement as to the best way of combining the atelier and the builder's yard. How far could the one supplement the other? He hoped that in the syllabus shortly to be issued from the new Board, students would be advised what to do. Personally, he thought the time given in a builder's yard would be better spent if it followed a student's training after his pupilage, though the contrary was the practice in the engineering profession.

Mr. Alan Potter

said academic study was necessary, but it should be practical. He believed in a combination of the atelier and the builder's yard.

The Chairman,

in putting the vote of thanks, which was carried very heartily, said it seemed to him that Mr. Green's argument was for the education of the bricklayer rather than the architect. In the discussion, had there not been a tendency to discuss the matter of training without sufficient regard to practical conditions—*i.e.*, the question of what an architect is? In the eyes of the public an architect had certain functions to perform, not the least being the carrying out of certain work for a certain sum of money. He had to deal with adjoining owners, public authorities, surveyors, and other professional people. He had to present his ideas to the client by means of drawings, which were not to be departed from in carrying out the work, so that it was practically impossible for him to proceed by any means except by design on paper. It might be a fine thing for an architect to work in the open air and go on with the design as the job progressed, and it might result in a fine work, but that was impossible at the present time, and the proper course of education must be on the lines of design on paper. The carrying out of the builder's yard argument to its logical conclusion would lead to an architect working, not in his office, but out of doors and as a builder. We should make the best of both methods in order to become a successful professional architect.

The vote of thanks having been agreed to,

Mr. Fyfe,

in reply, said he agreed with the President's remarks, and what he had said was what he (the speaker) had in his mind while he was writing his paper. They had to do buildings for clients, that was the end of all; and the demands of the public were, on the whole, very reasonable and intelligent, and we had to carry them out.

It was announced that the next meeting will be held on February 6, when a paper by Professor W. R. Lethaby, F.R.I.B.A., entitled "Greek Buildings," will be read.

ALTERATION TO PREMISES, HOLLOWAY-ROAD, LONDON.

Messrs. E. A. Roome & Co., of 36, Basinghall-street, E.C., and Homerton, N.E., are carrying out alterations and additions to Messrs. Jones Bros.' premises, Holloway-road, under the supervision of Messrs. James Laycock & Bellamy, of 4, Bloomsbury-place, Bloomsbury-square, W.C.; quantities by Mr. W. E. Davis, John-street, Adelphi.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS

Extension of the Royal Courts of Justice.

THE first building to be visited was the extension at the Royal Courts of Justice, to which members were admitted on January 21 by the kindness of Sir Henry Tanner. The extension consists of four courts at the same level as the present court floor, with which connexion will be made by a bridge in continuation of the provisional corridor left in the main building. An admirably simple plan has been devised. Along the eastern face of the new building runs a corridor in which the main entrances are situated. From this a spacious central corridor running east and west affords (on the ground and first floors) waiting space for those using the new courts, which are each 45 ft. by 36 ft., and placed two to the north and two to the south, separated by internal areas partially filled on the north by the main staircase from ground to first floors and on the south by public lavatories. Behind the courts, at the bench level, run judges' corridors, with their rooms on the outer north and south fronts, and lavatories projecting into the areas between the courts. Access to these private corridors is obtained by an upper story of the bridge, or independently by staircases at the north and south ends of the eastern corridor. The public galleries of the courts are approached by an independent entrance and staircase on the west side, communicating with an upper story of the central corridor. On the ground floor are jury and witnesses' rooms, and, in view of the possibility that one court may serve for criminal appeal cases, cells for prisoners.

In architectural style the building follows generally the existing main buildings. The eastern corridor and bridge are vaulted in stone, and both these and the main centre corridor on ground and first floors are faced internally with Portland stone, as are also the courts, above a wainscot panelled dado 12 ft. high. Extensive use is made of reinforced concrete in floor and ceiling construction, while the main roof will have steel trusses with wood purlins and rafters—surely sufficient variety of constructive method for a single building.

Much thought has been given to the acoustics of the courts, and as a result of trial and experience ceilings nearly flat and unbroken have been adopted as most likely to give good results. The heating and ventilation arrangements are also remarkably complete, and by means of false ceilings in reinforced concrete excellent ducts both for fresh air and extraction are formed. The perfectly natural method by which these ducts are contrived in the new material is interesting. The main floor beams at intervals are necessarily deep. They have skeleton webs uniting an upper and a lower boom, from one of which the ceiling extends, while the floor is continuous with the other. From a large area on the north front fresh air is drawn through water screens to battery chambers beneath the courts. From thence the warmed air passes through further chambers and up vertical ducts, discharging by inlets to the courts just above the wainscoting. Extract openings will be formed close to the ceilings, through which fans will draw vitiated air to discharge eventually from the flèches. The degree of importance rightly given to the question of ventilation may be judged from the fact that practically several entire mezzanine floors are devoted to its contrivance.

The exterior of the building is at present too much obscured by scaffolding to allow its form to appear, but on the west front at least there is a refreshing abundance of solid wall.

Mr. R. J. Allison kindly conducted the party.

The Church of SS. Anselm and Cecilia.

From the Law Courts the party proceeded to the Church of SS. Anselm and Cecilia in Kingsway, where they were received by Mr. F. J. Walters, who had kindly brought the drawings for inspection. The new building takes the place of that long known as the Sardinian Chapel, which was acquired by the London County Council in connexion with the Kingsway improvement. An important factor in the rebuilding was the question of cost, which it was desired should not exceed the amount allowed as compensation for disturbance and forced sale. Since all new fronts to Kingsway are, by express stipulation, of Portland stone, it was unfortunately necessary to curtail the design, which was wisely done by the omission of a tower over the south entrance. Although this leaves the church externally somewhat crippled in appearance, it is surely best that any church should be designed from inside, and none can regret that this charming interior has not been interfered with. The style adopted is Early Renaissance, French in feeling, and infused with considerable fancy in treatment. The whole is carried out in a very consistent manner, the scale being well maintained through all materials, and though the church is not a large one (seating only 500), it has considerable dignity of effect. Plan and section are well contrived to a difficult site, and the lighting has been carefully studied, the arrangement of the chancel being very effective. There is no east window, the wall being occupied by a lofty alabaster reredos, plain in the lower part and delicately sculptured above, surmounted by a carved and gilded baldacchino, and lighted by a single high window in the north wall not seen from the nave. Screened galleries to north and south of the chancel contain organ and choristers, united by an arched stone rood loft suggested by that of St. Etienne du Mont, Paris.

The interior stonework is Bath, and the roofs and ceilings are of unvarnished pitch-pine. Most of the furniture was removed from the old building, but there are fine brass altar rails and iron lighting pendants by Mr. Bainbridge Reynolds. All the carving is by Messrs. Earp & Hobbs. Mr. Frederick A. Walters, F.S.A., the architect, kindly arranged the visit.

ARCHITECTURAL SOCIETIES.

Leicester Society of Architects: The President's Address.

This Society opened its winter session on January 20 with an address from the President (Mr. W. M. Cowdell, F.R.I.B.A.), and a musical evening, in the Society's rooms, St. Martin's East. Among others present were Messrs. H. H. Thomson, W. T. Topott, A. H. Hind, W. Riley, K. Bedingfield, C. Kempson, W. Keites, F. B. Cooper, W. Keay, C. Stretton, W. T. Grewcock, E. Turner, and F. Rowlett.

The President, in the course of his address, said, in considering what form his remarks should take, it had occurred to him to look up the objects for which the Society was founded, and to see how they had been fulfilled, and how they were being fulfilled to-day. In doing this he had come to the conclusion that the leaders of the Society in the past had worked hard to fulfil those objects, and that to-day the Council, and also the general body of members, were still loyally working hard for the same objects, though possibly not quite in the same way.

They still had the same constitution, but what he used to look upon as a very aristocratic Society was now a very democratic one, anxious to include every architect and architectural student in the province. From the earliest days of the Society it had, he thought, maintained its alliance to the Royal Institute of British Architects.

Their second object was "to maintain an acknowledged code of professional charges and prices." Whilst far from suggesting that there was not ample ground for further progress, he thought those who cared to look back twenty-five years or so could not fail to recognise a very considerable advance in this respect.

The third object was to obtain and consider information respecting competitions and other matters affecting the profession, and to endeavour to ensure equitable terms and awards. Perhaps the recollection that a prominent landowner in the town had recently asked for, and received, the co-operation of the Council of the Society in promoting and carrying out a competition with the object of obtaining better architectural treatment of cottage and small house buildings, and the further facts, as he was informed, that from quite another source a suggestion had been made for a competition under the auspices of their Society, and that one of their past-Presidents was an assessor in the competition for the new Public Hall in Leicester, proved that in this object they were moving in the right direction. He congratulated the successful competitors in the Westcotes Competition on their clever and somewhat original plans.

The fourth object was to afford mutual assistance either among members themselves or between them and their employers, and to promote personal good-feeling among members of the Society. There were few of them probably who had not benefited by this object. In conclusion, he appealed to the members to attend the lectures as regularly as possible, for by their attendance they would not only benefit themselves, but would help others, and encourage the lecturers.

After an interval in the proceedings, a presentation was made to the retiring Hon. Secretary, Mr. W. K. Bedingfield.

The President, in handing Mr. Bedingfield a plaster portrait bust of his six-year-old daughter, which had been modelled by Mr. J. Crosland McClure, formerly of the Leicester Art School, referred to the excellent services Mr. Bedingfield had rendered the Society during the last six years, and expressed the hope that the memento would remind him of the strenuous days of the Society.

Mr. Turner and Mr. Thomson also spoke of the services of Mr. Bedingfield, who, in reply, said he looked back upon the time spent on behalf of the Society with great pleasure. Their present would remind him of those days in years to come, and with regard to the future he hoped the work of the Society would increase in usefulness.

A hearty vote of thanks was passed to the President for his address on the proposition of Mr. W. T. Topott, seconded by Mr. C. Kempson.

Nottingham Architectural Society.

The third meeting of the Designing Club connected with this Society was held on Tuesday, January 17. The subject set for competition was a design for a small detached house in a garden city. Six designs were sent in, and were criticised by Mr. E. H. Heazell, who had drawn up the conditions. An interesting discussion took place, at the close of which Mr. Heazell was thanked for his kindness in preparing the subject and giving such a valuable criticism. The meetings of the Designing Club are being well attended, not only by those who compete, but by the older members, who attend when possible, and by their kindly criticisms and hints help to make these meetings useful to all.

The Royal Institute of the Architects of Ireland.

A special meeting of the Council of this body was held at 31, South Frederick-street on Monday last. The President, Mr. Albert E. Murray, R.H.A., F.R.I.B.A., was in the chair, and there were also present:—Messrs. C. H. Ashworth, W. Kaye-Parry, James H. Webb, C. J. MacCarthy, F. G. Hicks, Lucius O'Callaghan, A. G. C. Millar, Frederick Batchelor, and C. A. Owen, Hon. Secretary.

A large amount of correspondence was dealt with. Matters affecting the leases of the Institute's rooms and the position of the surveyors under the authorised conditions of contract were referred to Messrs. Hayes & Sons, the Institute's solicitors, and to the Professional Practice Committee respectively for report.

GENERAL NEWS.

Professional Announcement.

The annual dinner of past and present pupils of Mr. G. P. Knowles, A.M.Inst.C.E., F.S.I., etc., will be held on Friday, February 17, at the Criterion Restaurant. Mr. Knowles will be glad if any past and present pupils from whom he has not heard would let him know if they are intending to be present.

The Surveyors' Institution.

Among the subjects to be dealt with during the remainder of the present session at the ordinary general meetings of the Institution are:—"The Evolution of Fire-resisting Construction," by Mr. W. Woodward, R.I.B.A. (Fellow); "Recent Developments in Parliament in Connexion with the Law and Practice re Water Rights," by Messrs. H. F. Bidder, barrister-at-law (Associate, and W. Vaux Graham, M.I.C.E. (Associate); "The Development of Building Estates under the New Conditions," by Mr. J. J. Done (Fellow). At the Liverpool meeting on May 25 Mr. O. W. Young (Fellow) will read a paper on

"The Mersey Dock Estate," and Mr. W. McCracken (Fellow) on "The Equipment of the Cheshire County Council Small Holdings," opportunities of visiting which will be given during the meeting.

Sir John Soane's Museum.

Sir J. Whittaker Ellis has been reappointed by the Court of Aldermen as their representative for the ensuing five years upon the Board of Trustees of the Museum.

Ancient Art Exhibition, Earl's Court.

The Honorary Committee for the Ancient Art Exhibition, which will be held at Earl's Court in the summer, includes Sir Caspar Purdon Clarke, F.R.I.B.A., late Director of the Metropolitan Museum of Art in New York, and formerly Director of the Museum, South Kensington, and Sir Henry Trueman Wood, Secretary of the Royal Society of Arts.

Church Pageant, Rotherhithe.

Under the direction of the Rev. J. C. V. Durell, Rector of St. Mary, Rotherhithe, as Master of the Pageant, a church pageant will be celebrated in the Town Hall of Rotherhithe on January 31 and February 1-3, and 7-10. Mr. E. de M. Rudolf is the Master of Heraldry, and Mr. E. T. Cook, Mus.B., Organist of Southwark Cathedral is the Musical Director. The scenes will represent the founding of St. Saviour's Priory in Bermondsey, 1082; the dissolution of St. Marie Overeye's, Southwark, 1539; and the institution of the first recorded Rector of Rotherhithe, Father John of Tocklive, 1310. The parish church was rebuilt in 1715-38, in the Grecian style, and was enlarged and improved in 1876 by Butterfield.

Homes of Celebrities, Scotland.

A syndicate has acquired the birthplace of Carlyle at Ecclefechan, Dumfriesshire, and is about to make some alterations of the interior, which will be reinstated and refurnished so as to present its aspect and condition as in Carlyle's time; some interesting relics will be transferred from London to the house.—The Eliock estate, in the same county, has been recently sold by Mr. G. Douglas Veitch to Mr. J. L. McConnel for, it is said, 38,000*l*. The property has continued for some generations past in the Veitch family, who derived it, by purchase, from the Dalzells, Earls of Carnwath. The "Admirable Crichton" was born in 1560 at Eliock, his father's seat, which his younger brother Robert disposed of to Sir Robert Dalzell, first Earl of Carnwath, in 1596.

Christ Church, Isle of Dogs.

An appeal is made for 600*l*. to defray the cost of a necessary repair of the church, the brick piers and arches which carry the floor having become cracked and ruinous, by reason of the treacherous foundation of the marshy soil. Messrs. Bodley & Hare have reported upon the unsafe condition of the fabric and recommend the provision of ferro-concrete rafts and new piers and arches, and that steel columns and girders should be employed to strengthen the sinking organ gallery. The floor, of which the concrete is seamed with fissures, has been temporarily shored up with wooden struts. The church was built in Manchester-road, in 1854, for 500 sittings, after designs in the early English style by Johnstone.

The Royal Sanitary Institute.

His Excellency the Earl of Aberdeen, K.T., has consented to act as Patron of the Twenty-sixth Annual Congress of the Royal Sanitary Institute to be held at Belfast from July 24 till 29, 1911. The Right Hon. Lord Dunleath, D.L., J.P., has consented to act as President of the Congress. The public meeting to inaugurate arrangements for the meeting will be held at the City Hall, Belfast, on Tuesday, January 31.

Church Building Society.

The Incorporated Society for Promoting the Enlargement, Building, and Repairing, of Churches and Chapels held its usual monthly meeting on the 19th inst. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz., building new churches at Forest Town, Notts, 80*l*.; Higham Hill, St. Andrew, Walthamstow, Essex, 150*l*. for the first portion; Langley Mill, St. Andrew, Derbyshire, 90*l*.; Hanley, All Saints, Staffs, 200*l*.; and Sneinton, St. Christopher, near Nottingham, 100*l*.; rebuilding the churches at Blackrod, St. Katherine, Lancs, 80*l*.; and Rochdale, St. Mary, Lancs, 150*l*.; and towards enlarging or otherwise improving the accommodation in the churches at Camberwell, St. Bartholomew, Surrey, 40*l*; Chobham, Holy Trinity, Surrey, 5*l*.; Kingston Hill St. Paul, Surrey, 50*l*.; Letchworth, Herts, 15*l*.; Pirton, St. Mary, Herts, 25*l*.; Somersham, St. John the Baptist, Hunts, 20*l*.; Ilkeston, St. John the Evangelist, Derbyshire, 70*l*.; Ilkeston, St. Mary, Derbyshire, 70*l*.; and Llanddewi, St. David, Denbighs, 20*l*. A grant of 25*l*. was also made from the special Mission Buildings Fund towards building a mission church at Sandwith, St. Bega, Cumberland. The following grants were also paid for works completed:— Pendleton, St. Ambrose, near Manchester, 130*l*.; Ewood, St. Bartholomew, near Blackburn, 100*l*.; Whiston, St. Mildred, Staffs, 35*l*.; and Penrhiwceiber, St. Winifred, Glam., 30*l*. In addition to this the sum of 396*l*. was paid towards the repairs of twenty-one churches from trust funds held by the Society. The appointment of Mr. Walter Tapper, A.R.I.B.A., as a member of the Committee of Honorary Consulting Architects of the Society was confirmed at this meeting.

Destruction of Lacombe House.

Lacombe House, a mansion situate a few miles from Hertford, was destroyed by fire a few days ago, together with practically the whole of its contents, including valuable furniture. The mansion, which stood in an extensive park, belonged to Mr. Abel Smith, formerly M.P. for East Herts, of Woodhall, and the total damage is estimated at many thousands of pounds.

Bust, Enfield.

The Lord Mayor attended at Enfield last Saturday to unveil the bust which has been set up in Enfield Public Gardens to the memory of the late Dr. J. J. Ridge, who was for thirty-five years Medical Officer of Health for Enfield, and was the founder of the British Medical Temperance Association. The bust was the work of Mr. J. Nesfield Forsyth, sculptor.

Mr. George Tinworth on His Art Work at Walworth.

Mr. George Tinworth addressed an audience on Thursday last week at the Southwark Central Reference Library, in the museum adjoining which is a small exhibition of his recent "Sketches in Terra Cotta," and other panels, which will be on exhibition until February 4. His "talk" was illustrated by a series of lantern slides depicting a selection of the works which he has carried out at York Minster, Truro Cathedral, Sandringham Church, St. Thomas's Hospital, the Guard's Chapel, and elsewhere. Mr. Tinworth also touched upon his own personal experiences of Walworth life, which he has given permanent form in his panel "The Wheelwright's Shop," lent for the Exhibition by the Brighton Art Gallery Committee.

ART AND REGISTRATION.

We take the following from a paper read to the Guild of Architects' Assistants on January 10 by Mr. H. Guicharde Todd, F.S.A.Scot., M.S.A.:—

"The future of art in architecture and the professional welfare of its exponents is to a great extent in the hands of the present generation, and two policies are put forward for consideration as ameliorations of the present unsatisfactory state of affairs in art and professional practice.

The registration of architects, as has been proved by several plebiscites, is supported by the great majority of architects, who appear to consider that the reorganisation of the profession is necessary, and architectural copyright is brought forward by a section which professes to more particularly study the future of our art, while protecting the interests of professional men. These policies may appear, at first sight, to be very similar and leading towards the same end, but a closer study of their probable effects in practice, and more particularly on art, is worthy of the consideration of this Society, especially as the members of this Society are probably the very gentlemen who will, in the next generation, have to practise under one or other of these policies, and, maybe, regulate their administration.

The policy of registration is particularly worthy of the notice of this Society, for this Guild is described as "The only Society formed and organised by architects' assistants to protect their interests," and it is apparent that the object of this body is to ensure some sort of security to assistants in the architectural profession.

Security, that most precious jewel of civilisation, is entirely the work of law. Without law there is no security, and consequently not even a certainty of subsistence, and it follows that, if this Society is not prepared to support the logical measure which will give security to the architectural profession and its individual members, that it will fail in its apparent object, in one direction at least.

It has been said that registration will limit the liberty of the architect, and be opposed to the welfare of art, but this contention does not appear to be well founded. Sir James Mackintosh, the eminent lawyer and essayist of the earlier portion of the last century, said, "The description of liberty which seems to me the most comprehensive is that of *security against wrong*. Liberty is, therefore, the object of all government." The registration of architects means the ultimate government of the profession by the profession to ensure *security against wrong*, but it is not only in the personal protection of the members of the profession that the policy of registration is worthy of consideration, and the probable effects of such a policy on art must be studied.

Art in architecture is acknowledged by the majority of our most prominent architects to be in a very unsatisfactory state, and the introduction of an Architectural Copyright Bill, at first sight, appears to be a necessary measure for the protection of the personal property and standing of the architect, but a reference (at the risk of being personal) to the published opinions of some of our leading architects on the present state of architectural art may be helpful.

Apathy of the Public.

The symposium on architecture, recently conducted in "The New Age," by Mr. Huntley Carter, is a valuable collection of opinions which should be of great interest to all architects and artists who look at architecture and art widely, and more particularly to those who, through registration, hope to see the Mistress Art take a proper place in our social life. The opinions of the eminent contributors to this symposium show a general despondence as regards the progress of our art, and Mr. Mervyn E. Macartney, F.S.A., F.R.I.B.A., and Mr. Edward Warren, F.S.A., F.R.I.B.A., who contribute interesting articles, are both of the opinion that the present unsatisfactory state of art and architecture is due to the ignorance and apathy of the public.

The registration of architects would not necessarily make every building in our streets a work of art, but it would undoubtedly, in future years, prevent the utterly unqualified and ignorant man from practising as an architect. Mr. Macartney truly says, "A tradition in architecture cannot be built up in a day," but, as public approbation is necessary to the progress of tradition, it is reasonable to expect that by gaining public approbation and notice through a non-controversial Registration Bill approved by the public through their elected representatives in Parliament, that further public approbation, understanding, and appreciation of the profession and its aims would follow.

In the first place, it is obviously the duty of architects to see that the public are not gulled, and even before "the public expresses some sort of approbation" it is possible for "architects themselves" to do much towards gaining that approbation. Architects may not advertise for their own personal benefit, but architects as a body can surely advertise the importance of their art by drawing public attention to it on every possible occasion. The Town Planning Conference has done much to convince the public of the importance of the architectural profession, but it must be remembered that the subject of town planning owes its present prominence very largely to the fact that it has been brought to the public notice through political channels, the Town Planning Bill having been

commented on by every journal of importance, and the subject having all the prominence of a political measure.

It is obvious that the introduction of a Bill for the registration of architects would also attract notice and convince a large proportion of the general public of the importance of the architectural profession.

The public apathy which Mr. Macartney and Mr. Warren deplore may be in some measure due to the fact that there is no obvious care of the public interest taken by architects as a profession. The public looks after its own interests through local by-laws and surveyors, whose functions are supervisory of the architect's work, and although this is necessary and probably always will be necessary, it has a tendency to an antagonistic feeling, which is regrettable and might be somewhat relieved.

In the medical profession the Diploma of Public Health (D.P.H.) held by so many doctors has convinced the public that public health is made a serious study by medical men; the profession is looked up to, and the public interests in that sphere are felt to be safe in its hands.

The institution of a diploma in civil architecture might well fill a corresponding place in the architectural profession, and have the same effect, in convincing the public that architects are solicitous for their well-being by endeavouring to give them artistic and suitable, as well as sanitary and well-built, buildings.

Architects would have a professional standing to lose, and if this were once appreciated by the public, the importance of good architectural work would be recognised.

Registration and Education.

It would be mere folly to assert that registration could do more than regulate the first artistic studies of intending architects. Registration could never force the architect to work in keeping with the best dictates of the canons of art, to build in proportion to the necessities of the case, apply his ornament to the best advantage, and restrain his vulgarity or that of his client.

In short, laws which may be made to govern professional practice, while tending to raise the profession and its works generally, could never synchronise with the laws of nature and the canons of art, which are subservient only to the laws of nature, but, under a wise measure of registration, every candidate for the practice of architecture would undergo some approved training, or give proofs of some artistic study, in addition to the utilitarian necessities of that professional knowledge necessary for the practice of architecture in the best interests of client and public.

This is suggesting no more than every *bonâ fide* architect does with his pupils, but under registration it would very closely affect what appear to be the causes which have brought this Guild of Architects' Assistants into being. One of the principal problems of this Guild must inevitably be the consideration of the position of the unqualified or badly-trained and inefficient assistant and his future elimination if possible. Under registration it is possible, and the next generation would necessarily show an improvement in this direction. By no other means does any great improvement appear probable, for the elimination of the unqualified architect is a necessary preliminary to the elimination of his badly-trained pupil.

The registration of architects would make it possible to obtain reliable statistics regarding the profession and all matters concerning it, and, as an executive force, the local influence of the provincial societies would be most valuable, as under a wise measure of registration their standing would be enhanced by their official connexion, as educational bodies, with the central authority, and through the whole of this land, societies working in the interests of art and architecture would be supervised to some extent by a central body.

Architectural Copyright.

In addition to this comprehensive policy, a Bill to protect architectural copyright is proposed, a Bill which should be of great interest to this Society and its members, as well as to the profession generally; to the members of this Guild as assistants, because it is conceivable that their ideas in many cases will automatically become the copyright of their employers, and to the profession generally, because the promoters of this policy are prepared to hand over, quite unnecessarily, the management of purely professional matters to members of the legal profession, who can hardly be judges of what constitutes originality in architectural design.

It is amusing to find that the first great proposal for many years, professedly in the interests of architects, should be so obviously in the interests of the legal profession, and such a Gilbertian position can only bring ridicule on architects, and give the public cause to believe that architects cannot manage their own affairs. Under registration the names of practitioners guilty of the malpractice of unjustifiably copying plans or elevations to the detriment of their professional brethren could be removed from the registration list, and this action would be a parallel to being struck off the rolls in the legal and medical professions. Lawyers and medical men have wisely kept the management of their own affairs in their own hands, and it cannot be said that it presses unfairly on the members of these professions, as only in the case of aggravated malpractice is the power of ejection exercised.

As architects can be the only judges of what constitutes infringement of architectural design, the elevation of some eminent architect to the Bench to deal with all cases under the Architectural Copyright Act would appear to be necessary, in conjunction with an arrangement whereby architects might take silk and plead at the Architectural Bar on matters of art. This may appear to be merely fantastic, but, given an Architectural Copyright Bill to protect originality in art and architecture, it appears to be a logical necessity.

This Bill has sprung from a circle which may be taken as antagonistic to registration as generally understood, and which, furthermore, professes to have the well-being of our art in its keeping. An Architectural Copyright Bill in conjunction with an Architects' Registration Bill is more attractive, but architectural copyright under existing conditions does not appear to be in the best interest of architectural progress. Registration, on the other hand, would appear to tend towards architectural progress. Mr. Reginald Blomfield, A.R.A., in his contribution to the symposium already mentioned, says that "only a trained architect can be an architect," and, as under registration in the next generation all architects would undergo some approved training and their pupils would be also trained, it follows that a profession trained to some extent would be the result.

The Heritage of Tradition.

This age is the antiquity of future ages, and has a precious heritage in the works of past ages, and yet irresponsible persons are allowed to destroy the beauty of our villages, the interest of our towns, and mar our city streets at every turn.

It is the duty of this generation to see that architectural tradition does not suffer at its hands, or through its negligence, and that the tradition should be carried on and handed over in some degree the better for the care it has received.

The registration of architects, by binding the members of the profession together, by enforcing a statutory disqualification, by emphasising the necessity for the study of architecture as an art, and through the power it would have as a united and definite profession, able to speak with one voice, could only have the effect of furthering this ideal of carrying our tradition forward, and proving to future critics that this generation was solicitous for the well-being of that art, which is undoubtedly the truest index to the culture or civilisation of any age.

The Practice Abroad.

Italy, Spain, Russia, several of the United States of America, the Transvaal, and some of the Canadian Provinces have successfully adopted registration, while Germany and Hungary compel all public architectural officials to have a Government diploma, and from none of these countries do we hear that the spirit of design in architecture has died on consequence. If architects bind themselves together under registration, in the interests of their art, as well as in the public interest, the tendency will be for the public to respond by showing appreciation of architectural refinement and excellence, and condemning the vulgar and inartistic."

ART AS EXPRESSION AND AS ILLUSTRATION.

THE following is part of a paper read before the London Institution on January 9 by Professor Ernest A. Gardner, M.A.:—

My paper deals with the purpose of the artist, whether it was his desire (1) to record or to transmit historical facts, (2) to explain and illustrate what was otherwise known or recorded, (3) to express or to communicate his own ideas or those of his contemporaries, or (4) to produce a pleasing decoration. These various aims are by no means mutually exclusive, and they constantly act and react upon one another, but it may sometimes be a help to consider each of them separately, so long as we do not ignore the other influences with which it is often inextricably mingled. Very frequently, indeed, men may recognise that the artist had no conscious aim beyond the pleasure of the artistic activity in itself.

Aim of the Artist.

It is the more necessary to consider the aim of the artist at the present day, because of the great confusion of thought that exists about the matter, and that often drives both artists and critics into one or the other extreme, such, for example, as the fallacy that "illusionism is the ultimate goal of art." This finds its clearest and most direct expression in Professor Loewy's statement that "when we are able to follow up an entire development of art, then we find that its morphological progress is from the psychical image to the physical, *i.e.*, to the image on the retina, the objectively received patch of nature with all its incidental and accessory detail. . . . The goal of this development can, indeed, in reality never be reached, for, having reached it, art would itself be brought to a finish." This saying doubtless applies to the methods of art rather than to its subjects or aims; but the two are connected; for we find, for example, the extreme views on the one hand that subject does not matter so long as we find a true and conscientious transcript from nature—the physical image; on the other, that subject or aim is all-important, as in the crude and uncouth attempts of early Christian artists to express spiritual truths. The attitude of the untrained public and of the professional critic towards what is sometimes called "the story picture" offers an example; the one is undeniably and naturally attracted by it, while to the other it is an abomination. Both are to some extent right, as any historical study will show us. At the present day the matter is of great interest because of the uncertainty of our artistic criteria; classical and academic standards are discredited, and we do not know what to put in their place. We have all of us recently been shocked and astonished by an exhibition of pictures which seems to many either puerile or anarchistic or both—that of the post-impressionists. We may best understand the artistic movement which it represents—for competent critics assure us that it is an artistic movement, and not a mere eccentric craze—if we understand it as a reaction against that very theory that illusionism is the goal of art, against the fallacy that art, "having reached that goal, would be brought to a finish." It is, indeed, perfectly true that the existence of ideas to express has not always, in the course of artistic development, coincided with the existence of adequate means to express them; and, above all, that successful illusionism has sometimes coincided with the absence of ideas.

Primitive Art.

It is the desire of the post-impressionists to express their ideas directly, so that we might call them, so far as they can be grouped together under any significant name, expressionists. But surely they have in their turn fallen into an elementary logical fallacy in assuming that because a mastery of the resources of artistic technique does not always go with a wealth of ideas to be expressed thereby, that therefore the two are mutually exclusive. There seems to be no *a priori* reason why an impressionist, or even an illusionist—which is by no means the same thing—may not also be an expressionist; the question whether it is likely to be so or not can best be considered in relation to history; and in the history of art the more primitive is the less complicated and therefore the easier to understand; I have therefore no hesitation in asking you to follow me into the regions of the primitive or ancient art in order to seek the answer

to a problem that faces us to-day. It is impossible, and it probably will always remain impossible, to ascertain whether the first impulse towards artistic activity came from the practical desire to tell a story or record an event, or from the unconscious instinct for artistic expression in visible form, but it is evident that the latter was at a very early stage combined with the desire to decorate objects of daily use, and, as we shall see later, the purely artistic, as we may call it, and the decorative seem to show at various periods a tendency to combine against the utilitarian aim.

1. Palæolithic art in its best-known examples is purely idealist or impressionist, and some is also decorative.

2. In the bronze age there is a desire to tell a story, as in most art of more practical civilisations.

So far expression and illustration are one. They first come to be differentiated with the beginning of conventional pictography—that is to say, a picture writing in which the picture does not at once tell its own story, and serve both as record and as illustration, but conveys a certain definite meaning attached to certain conventional symbols.

The purpose in this case is a definite and intelligible record of historical events, as, for instance, the exploit of some Oriental monarch. This purpose leads to the invention of a whole system of devices and conventions which are suitable to carry it out; armies on the march or in combat are represented by iteration of figures or duplication of lines; fortresses and towns by a curious combination of ground plan and elevation, and the scale of various figures and objects is touched in a way that considers merely the convenience or importance of the representation, with little or no regard of the actual or relative size. And, moreover, the whole surface of a wall or other space is treated like a map or diagram, with a view to the clear rendering of successive scenes, and with little or no care for symmetry or decorative effect. We also find that, with the possibility of the successive enumeration of consecutive scenes, selection becomes of comparatively small importance, and what has been called the continuous method, in which certain figures are repeated again and again in the successive stages of an action, becomes a favourite device. Greek art, as we shall see, rejected all these devices and conventions, owing to its finer artistic instinct, and its desire to make the artistic representation express an idea rather than record or illustrate facts. To this we must return directly; but it is interesting to notice at once how a recurrence of similar conditions and a similar purpose leads to a similar return to these same devices.

The most characteristic of all devices, that commonly known as the continuous method of representation, exists both in Oriental reliefs and upon Trajan's column.

We have seen that this continuous method also commended itself to Roman imperial art. It is interesting to follow it further into early Christian art, where its adaptability to didactic purposes made it peculiarly suitable for such pictures as were intended for edification and instruction rather than for the artistic expression of religious ideas. These pictures also served to tell the story in themselves for those who could not read, or at least to remind the spectator of such stories as he had heard.

So far we have seen art kept almost entirely in a subordinate position, as carrying out obediently the task set it either by the chronicler of royal or imperial exploits, or the religious teacher. It is true that in many cases there is another aspect of the matter, in the decorative purpose served by many of these reliefs or pictures, which gave art even in these examples an independent position of its own and a voice in the composition and distribution of the various scenes. Perhaps it was this decorative principle more than any other that led to its ultimate emancipation, by substituting for an external domination a more kindred and sympathetic rule.

Some of the best early specimens in which the decorative purpose and the delight of the artist in his work are most prominent are to be seen in the Mycenæan period in Greece.

The Comprehensive Method.

With the introduction of mythology, we find a new method coming in which thenceforth has great influence throughout the development of Greek art, and only yields to the continuous method again in Roman and Christian times. This new method is called by Wickhoff the complementary method; I think a better name is the comprehensive method. The notion underlying it seems to be that a picture should convey to those who look at it not a sequence of action, but the essential features of a story or of a situation. In some cases this can be done by merely selecting for representation the pregnant moment, the motive that implies the results of previous action and that contains the germs of what is to follow, but in other cases this is difficult or impossible; and then the same effect is obtained by combining into a single composition various events or actions that could not in reality be seen at the same place and time; the whole, in fact, is transferred to imaginary conditions, without any clear definition of place or time. The essential difference between this and the continuous method is that individual characters are not repeated in the same scene, but that, where what must have been consecutive and not contemporaneous are set side by side, the actors or things themselves are not identical, though they may suggest identical ideas.

We can realise how at different times various devices have been used to escape from the restrictions of the continuous method of narration to give art extension in time as well as in space, and how, by the comprehensive methods, the Greek vase painter contrived to include something beyond a momentary situation without trangressing the due bounds of his art. The essential difference between the two seems to lie in the fact that the artist of the comprehensive method tries to express directly the meaning of his subject, not merely to repeat its incidents or to illustrate its details; and in so far as he does this, with whatever degree of success, he is the truer artist. In more modern art it is often not so easy to distinguish. A particularly interesting case is that of poet-painters such as Blake and Rossetti, who expressed themselves in both media at once; and here it is possible to notice how Blake, with his higher and more unconscious inspiration, often expresses the same idea in a quite independent manner in the two cases; while one often feels in the case of Rossetti either that his pictures are an illustration of his poems, or that his poems are a mere comment on or explanation of the picture. Turner, again, with his power of landscape such as was given to no earlier art, could give to the face of nature itself a direct expression of his theme. There is no time now to follow this train of thought further; numerous examples will occur to any of us, such as the illustration of the letter in elaborate pictures of scenes from Shakespeare's plays, as contrasted with the expression of ideal or character in successful presentations of his chief characters, which may be compared with the Helen of Zeuxis as a portrayal of Homer's heroine. The Greek artist never gave a mere transcript of nature, the physical image, nor was he ever content merely to lend his art to illustrating or explaining the ideas of another; he had always before him the psychical image, to which he strove to give direct expression. But he always gave expression to his idea by means of the most natural and the most beautiful form; he had not been tempted to make the means of artistic expression an end in themselves, and therefore he felt no danger in giving them the fullest scope within his power. There is no essential reason why the best expressionist should not also be the best impressionist.

CLASSIC ARCHITECTURE IN ENGLAND AND AMERICA.*

At the present time English architects are being stirred to greater efforts by the cultured and scholarly architectural style which is rapidly developing in the United States of America—a style which completely expresses the national character because it has all the attributes of fitness.

This development of architectural design in America means to England precisely what the artistic activity of the Archaic Greeks in Dorian Sicily, Magna Græcia, and the Ionian cities of Priene, Miletus, and Ephesus meant to the culmination of Hellenistic art at Athens.

America, with its unbounded resources, great commercial enterprise, and latterly a closer appreciation of the arts, has awakened the Mother Country to a fuller sense of dignity and responsibility with regard to the important question of the design of monumental architecture.

It will be necessary to briefly review the principal events which brought about the Classic revival in England, and to show that the magnificent public buildings of the later phase of this revival are at least equal in merit, if not in size, to the best buildings in America. It is unfortunate that hitherto our efforts have been directed toward the revival of the earlier *motifs* of the English Renaissance, and that until quite recently our most scholarly structures have been scarcely noticed. The return of Inigo Jones to England, fired with enthusiasm for the works of Palladio and with a still greater enthusiasm for the Roman antiquities, resulted in the magnificent plan for the new Palace of Whitehall—a plan undoubtedly suggested by the plans of the great Thermæ. Sir Christopher Wren lacked the opportunities of foreign travel and study abroad such as were enjoyed by Inigo Jones; his knowledge of Classic architecture was derived from such publications as Desgodetz's treatise on "Roman Architecture," Evelyn's "Parallels," and other works; his undoubted mastery in architectural composition was somewhat marred by the weakness of the ornament he employed, which has nothing of the Classic spirit about it. A giant in architectural composition does not frequently flourish. The man and the moment must concur. Wren's successors gradually developed a pure Palladianism, which in turn gave place to a Roman revival, followed by a Greek revival, and culminating in a style which was a combination of Greek, Roman, and Italian *motifs*.

The Fruits of Travel.

Early in the XVIIIth century it became the fashion for talented amateurs to travel abroad, and it was owing to the patronage of Richard Boyle, Earl of Burlington, that Castell's "Villas of the Ancients" was published in 1728. This nobleman collected statues, objects of art and drawings. In 1730 he caused to be published Palladio's original measured drawings of the Roman Thermæ, and generally advanced the ideas of the amateurs and professionals towards a greater purity of taste. The Society of Dilettanti, formed in 1734, to promote the study of Classic antiquities, Robert Wood and Dawkin's books, "Ruins of Palmyra" (1753), "Ruins of Baalbec" (1757), Stuart and Revett's "Antiquities of Athens" (1762), and "Antiquities of Ionia" (1769), together with the buildings of other architects who had travelled abroad, but who did not publish any works connected with their travels, all combined to familiarise Englishmen with the spirit of Classic art.

Piranesi's first dated etchings appeared in 1748, and consisted of thirty plates showing views of triumphal arches and other Roman buildings. Copies of these etchings were acquired by the vituosi in England, and the architects of the time constantly referred to these wonderful illustrations for inspiration and guidance. Sir William Chambers published his treatise on the "Decorative Part of Civil Architecture" in 1759, a work which still exerts its beneficial influence.

The early years of the XIXth century witnessed vast strides in engineering and architectural circles. The Continental wars had culminated with the Battle of Waterloo, and Europe was at peace; the age of steam had set in, and with the harnessing of this potent force commercial enterprise developed to such an extent that the demand for ordered architecture became greater. The Regency period might be described as the great period of civic design. John Nash and Decimus Burton directed their attention to extensive compositions, and it was owing to the efforts of the former architect that the arrangement of Regent-street into imposing architectural blocks regulated as to height by the width of the street was rendered a successful achievement. The magnificent composition of the Regent's Park Terraces, designed to house the members of the aristocracy and to give them all the advantages of a palace in London, with views reminiscent of their country estates, can be attributed to both the aforementioned architects.

The stucco work of this period has scale and

* A paper by Mr. A. E. Richardson, read before the Architectural Association Camera, Sketch and Debate Club on January 12.

dignity. More attention was paid to composition on a great scale than to beautiful detail. The use of the material was perfectly justifiable, inasmuch as it could be freshly painted at certain periods. A clause in the leases of the tenants regulates the period for repainting at intervals of four years, the uniform colour to be that of Bath stone. Much of the work at Regent's Park has nothing to deserve approbation—the detail will not survive analysis, the sculpture is indescribable, but the scale is magnificent, and it is the scale that is all-sufficient.

Monumental Design.

In addition to the work being erected in London, great changes in monumental design were occurring in Scotland and Ireland, as well as in all the large provincial cities of England. In Edinburgh the superb High School and the Royal Scottish Academy, the Town Hall and the Customs House at Leith, the Royal Exchange and square and the Courts of Justice at Glasgow, the Town Hall at Paisley and the Customs House by Playfair at Greenock. In Dublin three magnificent railway-stations, including the Broadstone terminus of the Midland and Great Western lines, also fine structures at Cork and Belfast; at Liverpool, the second city of the Empire, the Customs House, St. George's Hall, a branch of the Bank of England, and other works; at Newcastle the fine Central Station by Dobson; at Leeds the palatial Town Hall; at Huddersfield a lengthy railway-station of classical merit; at Bristol, the new buildings in Corn-street; at Bath the work by Goodridge the elder.

The whole of the foregoing work proceeding at that time in Great Britain and Ireland was a reflex on a smaller scale of the activity in evidence in London. The names of Soane, Smirke, Inwood, Nash, Decimus Burton, Barry, Tite, Basevi, and Pennethorne were household words; in fact, these distinguished gentlemen formed the nucleus of the Royal Institute of British Architects. The foremost English architects of that day were in constant correspondence with their French and American brothers; an exchange of ideas took place, which resulted in English architecture gaining a prestige for scholarly refinement and Classic beauty.

There is one name which I have not previously mentioned—a name so important to our future architectural development that I have reserved it to the last. I refer, gentlemen, to Professor C. R. Cockerell, an eminent archæologist, a great architect, and a still greater designer. Cockerell commenced his travels abroad in 1810, and spent six years labouring at Ægina, Bassæ, and at Athens, afterwards returning to England through Italy and France. It is significant of Cockerell's work that it never approached pedantry. The professor himself said that regard for antiquity lost half its merit when it degenerated into mere facsimile reproductions; the more exact the copy the greater the failure. Cockerell's finest building was the Sun Assurance Office in Threadneedle-street, now very much altered by the insertion of another story. This building shows the wonderful power of design the professor had, as well as displaying his profound knowledge of architectural history; the resulting combination of *motifs* is excellent. Greek finesse is allied to Roman scale and Italian warmth, and underlying all the master-hand of the genius can be discerned. The detail is always refined, and it approaches as near to freshness and originality as could be desired. I should, however, sincerely regret to see any of Cockerell's buildings or designs slavishly copied; if that were done, all hope of advancement would be checked. What must take place is a close study of his methods and style, and a sure knowledge must be obtained of the *motifs* he drew upon to make his work so thoroughly English.

Modern Tendencies.

To-day we stand bewildered amidst the Babylonian confusion brought about by the thoughtless reproduction of various historical styles. Indeed, it is the custom now to hear such remarks as, "What a fine Georgian library!" or "What a magnificent Elizabethan house!" instead of, "What a successful library or expressive house!" Our civil architecture has been criticised by distinguished foreign architects as being akin to the art of the theatrical costumier. We have been engaged in reproducing buildings of romantic periods, regardless of direct design and modern expression. To quote Professor Cockerell: "The study of the beauties and defects of celebrated buildings should be the aim of the scholarly architect; this was the confirmation of theory and led to that knowledge of form and combination which makes the accomplished architect. The importance of this confirmation of theory was admitted by every practical architect. No man invented an order or a series of mouldings; these he accepts from the greatest and most reputed masters who have preceded him; he stores designs, books, and portfolios, and prides himself, like the lawyer, on his precedents and authorities. Absolute invention he never proposes to himself for a moment, but by an enlarged study of history and examples he is enabled to detect the petty prejudices of schools, to emancipate himself from the trammels of nationality and fashion, and to regard the works of all times and countries as subject to his use so far as they may be conformable to strength, convenience, and beauty."

To this valuable extract from one of the Professor's lectures must be added a word with regard to the power of criticism. The critical power is of much lower rank than the creative, but it is none the less important; the merciless criticism to which the works of the Greek architects were submitted resulted in the maintenance of a high standard of perfection, and were this criticism to be a little more outspoken in this country I venture to suggest that due regard would be paid to eliminating such superfluous trappings and tawdry ornamentations with which our new buildings are spoiled. I refer to the indiscriminate use of broken pediments, cartouches, rusticated columns, grotesque masks, and fruity festoons which have no direct argument in expressing the character of a structure. Such debased forms could very well be omitted, especially as they are used without any regard for sentiment. Buildings ornamented in this way masquerade under the title of Classic—they are not even pseudo-Classic—and already this neo-impressionistic form of architecture is meeting with the opprobrium it so richly deserves.

The cultivation of our domestic architecture has been at the expense of our civil art, and splendid opportunities for the creation of really monumental structures have been frittered away; our efforts have been directed toward the development of a civil style based upon domestic *motifs*, instead of toward a grand "monumental style," which should express the culture, power, and might of the Empire. The lack of this appreciation of a monumental style is very apparent in the Colonies. Architects practising in Australia, New Zealand, and South Africa follow through the medium of the building papers the latest fashionable tendency in the Mother Country, and the reflex is in most cases worse than the original. Canada is the exception; there American architects are employed, or closely followed, and the result has more than justified the experiment.

A great French architect recently said that the spirit of Classic architecture was dead in England, and he regretted that the fine Classic traditions fostered by our scholars of the late XVIIIth and early XIXth centuries should have been perverted.

We are decidedly provincial in our tastes, judged by the high academic standards followed in France and America; in a word, we have no definite standard of taste, no criticism, no unity amongst our leaders, and, lastly, but most important, no great National School of Design which should serve as a finishing school. The architectural traditions of England are greater than any one practitioner, however capable he may be, and I feel sure that we have in this country some of the finest examples of monumental architecture the world contains. Unfortunately we have not appreciated these works to anything like the extent that they have been appreciated by the Americans, and it has been owing to the influence of these buildings that American architecture stands to-day on the bedrock foundation of the "Grand style."

The war of the styles, Gothic and Classic, was fought long ago on the Victorian battlefields, and the result was *nil*. No advance was made towards the real and inner meaning of architecture; no attempt was made to further a Classical tradition which adequately expressed modern conditions; the great wonder is that the lamp of Classicism was kept alight in the midst of the turmoil, but kept alight it was, and, although the flame burned dim and the oil was weak and watery, it lit the gloom of the later Victorian age through the successive phases of the Gothic, Queen Anne, and Georgian revivals.

American Architecture.

In America during the early years of the Republic architecture assumed a more monumental character.

The first trace of European influence in this connexion is to be noticed in the New York City Hall, built in 1803 and finished in 1812, from the designs of Mr. Comb. This building shows traces of the Louis Seize style in its general arrangement.

The earlier buildings comprise the original State Capitol at Washington (1793–1830), the State House at Boston (1795), and the University of Virginia at Charlottesville (1817).

The Classic revivals in England, France, and Germany began to assert their influence on American architecture about this period, and reached their zenith about 1846.

The greatest influence, however, came from England, and the magnificent contemporary academic architecture has left its impress very strongly on the official architecture of America; so much so that it would not be far wrong to say that the English tradition and character has so far predominated over all other phases of architecture practised in the States; and this in spite of the eclecticism now being pursued.

The Civil War temporarily broke the chain of sequence between the earlier work and the work of the present day.

Such geniuses as R. M. Hunt (1827–95) and H. H. Richardson (1828–86) did much to direct the attention of the American public towards sound architectural methods. The establishment of schools of architecture in the great civic centres and the opening of museums stimulated a desire for foreign travel, and the result has been the extraordinarily rapid development of the national architecture. American students throng the studios of Paris and Rome. Their desire is not to blindly copy the works of past masters, but to emulate the spirit of these works and to advance the art of architecture until it reaches a still higher plane.

The work of Messrs. McKim, Mead, & White is too well known to be redescribed. These three gentlemen had the advantage of a Parisian training, but they had something a great deal more valuable to the practice of their art than even that; they were fortunate in having the rare gift of discrimination, and more than fortunate in having the reticence and austerity of the Anglo-Saxon character deeply engraved in their souls. American architecture to-day owes its style, character, and tone to the earlier and kindlier influence of the scholarly exponents of the Classic revival in England.

THE LONDON COUNTY COUNCIL.

THE first meeting of the London County Council after the Christmas recess was held at the County Hall, Spring-gardens, S.W., on Tuesday. Mr. Whitaker Thompson, the Chairman, presided.

LOANS.—Sanction was given to the following loans:—Paddington Borough Council, 5,700*l.* for paving; St. Pancras Borough Council, 3,997*l.* for electricity undertaking; Shoreditch Borough Council, 2,657*l.* for paving and sewerage works.

REPAIRS TO SCHOOLS ON SCHEDULE PRICES.—The Education Committee reported that Messrs. Griggs & Son, contractors for repairs, on the schedule of prices, to school buildings had given notice for the termination of their contract on December 16, 1910, and the Committee recommended that for the execution of any work which may be required until March, 1911, when new contracts will come into operation, Messrs. F. & T. Thorne, contractors for similar work in the adjoining groups of schools, be appointed contractors. This was agreed to.

MALL EXTENSION TO CHARING CROSS.—The Improvements Committee submitted a Report on the conference that had taken place between the Council, the Westminster City Council, and the Office of Works. The Report stated that:—

"At the conference which took place on January 11 the various points raised by the Council's representatives were very fully

discussed, and Lord Beauchamp explained the view of the Government that the whole scheme was practically before the Council in its earlier stages, and its present position was only a development from the original idea, which never contemplated carrying out the improvement beyond the area of the park and the Crown property in Spring-gardens. Although we still adhere firmly to the view we have always held that the responsibility for the completion of the Victoria Memorial rests solely with the Government, we cannot contemplate without grave concern the possibility of its indefinite postponement; we therefore think that the Council should make every possible concession in order that a reasonable settlement may be arrived at. It is, we understand, unlikely that the Westminster City Council will see its way to increase its very generous offer of 50,000*l.*, nor do we think it reasonable to expect it to do so. We recommend, therefore, that the balance should be borne in equal proportions by the Government and the Council, the Government receiving credit for their net expenditure in acquiring the sites of the two houses already referred to. For architectural and cognate reasons it seems desirable that the completion of the improvement should remain in the hands of the authority responsible for its inception. The Office of Works have for a number of years had the matter in all its bearings under their constant and careful consideration; they are better acquainted with its architectural and topographical possibilities than the Council. We therefore feel that, subject to the Office of Works seeing no objection, the Council would, in the interests of the scheme itself, be well advised to hand over its contribution to the Government with a suggestion that the Office of Works be entrusted with the duty of supervising and controlling its completion."

The Committee recommended :—

"That, in order that the completion of the Victoria Memorial may not be indefinitely delayed, and in view of the urgent necessity of completing the processional road without further delay, the Council would be prepared to consider as a final settlement of the case (i.) a contribution by the Government based upon one-half of the actual cost of the improvement after the deduction of a contribution of 50,000*l.* from the Westminster City Council, and taking the net cost of the property already purchased opposite Drummond's Bank as part of the Government's contribution; (ii.) a contribution by the Westminster City Council of 50,000*l.*; and (iii.) the balance of the estimated cost being borne by the Council; and that the Improvements Committee be instructed to prepare the necessary estimate on capital account for submission by the Finance Committee as soon as a settlement on these lines has been arrived at."

Lord Alexander Thynne, M.P., in moving the adoption of the resolution, said the Board of Works having rejected the Committee's recommendation, it, of course, fell to the ground. The Government proposed to pay 25,000*l.*, but their share under the proposed apportionment would have been 35,000*l.* There was one material factor of which the Improvements Committee had always been cognisant, and that was the contingent liability with regard to the completion of the Victoria Memorial in the future. He did not think that anyone who had taken the architectural features of the scheme into consideration would say that the scheme which it was now proposed to carry out would be a satisfactory completion of the memorial. That scheme had been forced upon them by financial, and not by architectural considerations. After it had been carried out it would be necessary in the future to clear away more houses.

Mr. H. Ward moved as an amendment that the Government's offer of 25,000*l.* should be accepted. He was surprised at Lord Alexander Thynne's suggestion that the opposition to the Government's proposal was not a party matter. The estimated cost was 146,900*l.*, so that with the Government's contribution of 25,000*l.* and that of the Westminster City Council amounting to 50,000*l.*, the cost to the County Council would be 71,900*l.* only, or 4,100*l.* less than if the Committee's recommendation was carried.

Mr. H. H. Gordon, seconding, said the Government had never had an opportunity of considering the proposal.

After further discussion the Committee's recommendation was put to the vote and carried by fifty-five to sixteen.

PROPOSED CONVENIENCES, WANDSWORTH COMMON.—On the recommendation of the Parks and Open Spaces Committee it was agreed to provide convenience accommodation at Wandsworth Common, and to invite tenders from selected firms for carrying out the work.

ALTERATIONS TO THEATRES, ETC.—The Theatres and Music Halls Committee recommended and it was agreed that the following drawings be approved :—

Drawings and particulars, submitted by Messrs. Withers & Meredith, showing a proposal to rebuild the Cavendish Rooms, 51-55, Mortimer-street.

A drawing, submitted by Mr. W. H. Adams, showing an improvement of the exits and other alterations proposed to be made at the concert-hall and rink, The Avenue, Blackheath.

Drawings and a specification, submitted by Messrs. H. Wakeford & Sons, in respect of a cinematograph-hall proposed to be erected in railway arch No. 815, Herne Hill-road. The hall will have accommodation for about 450 persons.

Drawings, submitted by Mr. B. Crewe, of an opera-house proposed to be erected in Kingsway, Portugal-street, and Sardinia-street. The premises will have accommodation for about 2,850 persons.

A drawing, submitted by Mr. R. R. Barnett, showing a chair-store proposed to be constructed in an area at the Shaftesbury Theatre, Shaftesbury-avenue, and the alteration of the means of light and ventilation to the pit urinal and the approach corridor to the stalls on the o.p. side.

The Committee also reported that they had approved drawings for the following :—

Alexander Institute, Carter-street, Walworth—provision of an electrical installation.

Central Y.M.C.A., Tottenham-court-road—ventilation of the concert-hall.

Empire Theatre of Varieties, Leicester-square—alterations to cinematograph-chamber.

210 and 211, High Holborn—ventilation of the basement of the premises.

Hotel Great Central, Marylebone-road—alterations to the electric lighting.

Kennington Theatre, Kennington Park-road—alterations and additions to the heating installation.

London Palladium, Argyle-street—provision of an additional exit staircase from the palm-court, and alteration of the position of lavatories.

Manor-place Baths, Southwark—provision of a cinematograph-chamber.

CORRESPONDENCE.

The Coronation Annex at the Abbey.

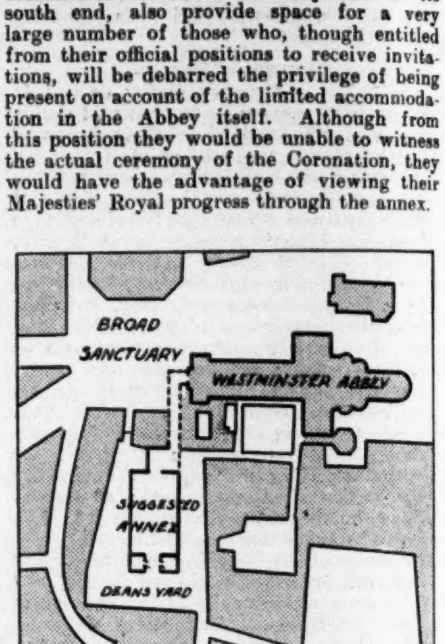
SIR,—It has recently been publicly stated that on the occasion of the forthcoming Coronation there is to be erected at the west end of Westminster Abbey an annex, to appear as part of the ancient Abbey, being, in fact, a replica of that used at the Coronation of King Edward VII.

Many in the crowd who spent so much of their time gazing at the erection of that ingenious building doubtless thought it was the most wonderful thing they had ever seen —but they had not then visited the White City—yet numerous were the remarks made at the time by those competent to express an opinion that not only was the appearance of the Abbey spoilt, but that the Coronation arrangements were robbed of much of their dignity by the erection of that most bazaar-like cardboard erection, which by pretending to be what it was not was of necessity not only inartistic, but in bad taste, and once again we illustrated to our foreign visitors our unfortunate artistic limitations on all such occasions.

Before any actual steps are taken to again disfigure the Abbey with a similar absurd building, may I be pardoned in expressing the hope that the responsible authorities will consider whether some more appropriate plan cannot be adopted for adding the necessary additional accommodation to the Abbey.

Should the width of the entrance to Dean's-yard make it feasible, may I suggest that the annex might be erected in the form of a large marquee in the centre of Dean's-yard, with a connecting corridor through one of the houses on its north side leading to the west door of the Abbey.

Such an arrangement would not only obviate the necessity of hiding up a portion of the west front of the Abbey, but the large accommodation that would be afforded by an annex the size of the centre of Dean's-yard would, in addition to providing ample robing accommodation for their Majesties at its south end, also provide space for a very large number of those who, though entitled from their official positions to receive invitations, will be debarred the privilege of being present on account of the limited accommodation in the Abbey itself. Although from this position they would be unable to witness the actual ceremony of the Coronation, they would have the advantage of viewing their Majesties' Royal progress through the annex.



Suggested Annex to Westminster Abbey.

One need only look back at the arrangements that were made for adding additional accommodation to the cathedral of Notre Dame at the time of the Coronation of their Majesties Napoleon, Emperor of France, and Josephine to realise how in the hands of an artistic nation the erection of a temporary annex may be treated.

The following account is taken from a work published in Paris, 1807, by Leblanc-Abbaye, in which is fully described the ceremonies and the *fêtes* which took place in connexion with that Coronation :—

"This tent, round and supported by sixteen pillars, was decorated with rich tapestries from the factory of Gobelin, and lined with costly fringes. On top of each pillar there was a gilt eagle surmounted by a flag showing the colours of the Empire.

The tent was open on four sides, and large enough for an easy circulation of several carriages; it served as a kind of vestibule to a great staircase specially constructed for the ceremony when their Majesties entered the apartments of the palace of the Archbishop. There they were received by His Excellency the Cardinal Archiveque of Paris, who conducted them to the reception-rooms. There the Emperor put on the Imperial State robe, and then walked with his suite to the main entrance of Notre Dame, crossing the courts of the Archiveque under a covered gallery 450 toises long and decorated with Gobelin tapestries leading to the great portique erected in front of the church facing the palace."

F. W. SPEAIGHT.

Boundary Railings at Westminster Abbey.

SIR,—I was amazed to read in your last issue an attack on the railings to the north-west of Westminster Abbey, the reference, I assume, being to that very charming, simple, and dignified combination of iron and stone, which appears to me to be admirable in every sense. No, sir, if railings are to be removed in Westminster, first let those round Parliament-square be abolished for ever, for they are a real eyesore to the neighbourhood, and a plain stone kerb would be infinitely preferable. A wayward errand-boy or a baffled Suffragette might possibly trespass on the grass plots thus laid open, but the municipality and the police might pardon such a misdemeanour in order that the public eye might no longer be irritated by the curved lines and blatant decoration of this "Gothic" abomination.

ERNEST HERBERT.

EDITORIAL SUMMARY.

The leading article this week is devoted to the Turin International Exhibition (p. 95). In addition to general information, the article includes some particulars of the Exhibition buildings, and is illustrated.

Our "Notes" (p. 98) include: "Elections at the R.A." (F. Short, C. H. Shannon, and Mark Fisher; "The Institute of Builders' Dinner"; "Sir William Eden's Views"; "Accommodation at the Law Courts"; "Chapel Royal, Stirling Castle."

"The Atelier *versus* the Builder's Yard" was the subject for discussion at the last meeting of the Architectural Association (a combined meeting with the Camera, Sketch, and Debate Club), the discussion being opened by Mr. Theodore Fyfe in a short paper (p. 99). Mr. Curtis Green also contributed a short paper on the question. The papers and the discussion dealt with the education and teaching of architects—academic teaching as exemplified in the Ecole des Beaux-Arts in France *versus* craftsmanship, or the teaching of architecture as engineers are taught engineering.

We give on p. 106 a paper read by Mr. A. E. Richardson before the A.A. Camera, Sketch, and Debate Club on January 12, which dealt with "Classic Architecture in England and America," and compared the influences governing recent developments in design.

An account of the first Spring Visit of the Architectural Association this year appears on p. 103. The party visited the extension of the Royal Courts of Justice and the Church of SS. Anselm and Cecilia.

Professor Ernest A. Gardner, M.A., read a paper at the London Institution on January 9 on "Art as Expression and as Illustration." The paper dealt with the purpose of the artist, whether it was his desire (1) to record or to transmit historical facts, (2) to explain and illustrate what was otherwise known or recorded, (3) to express or to communicate his own ideas or those of his contemporaries, or (4) to produce a pleasing decoration (p. 105).

"Art and Registration" was the title of a paper read before the Guild of Architects' Assistants on January 10 by Mr. H. Guicharde Todd, F.S.A.(Scot.), M.S.A. Part of it appears on p. 104. Registration and Education and Architectural Copyright are subjects dealt with by the author.

The Engineering Monthly Review (p. 111) contains illustrated articles on: "The Mississippi Dam"; "Grafton Bridge, New Zealand"; "Sheathing Steel Trestles"; "Foundation Problems, Brooklyn Navy Yard"; and notes.

The first article of the Building Trade Section (p. 116) is entitled: "Pitfalls and Errors in Estimating." A full report of the Annual Dinner of the Institute of Builders is given (p. 116), and also a report of the Dinner of the Builders' Foremen's Association (p. 119).

MEETINGS.

FRIDAY, JANUARY 27.

The Royal Institution.—Professor W. H. Bragg, M.A., F.R.S., on "Radioactivity as a Kinetic Theory of a Fourth State of Matter." 9 p.m.

London County Council Westminster Technical Institute (Vincent-square, S.W.).—Mr. J. S. Dow, A.C.G.I., B.Sc., on "Illumination"—7.30 p.m.

Queen's College, London. — Professor A. Wallace Rimington, R.B.A., on "Present-Day Currents of Opinion upon Art."

MONDAY, JANUARY 30.

Royal Institute of British Architects.—(1) To announce the name of the person the Council propose to submit as a fit recipient of the Royal Gold Medal, 1911; (2) to present to the Institute, on behalf of the subscribers, the portrait of Mr. Ernest George, A.R.A., Past-President, painted by Sir Hubert von Herkomer, R.A.; (3) the President, Mr. Leonard Stokes, to deliver an address to students; (4) Professor C. H. Reilly, M.A.Cantab., to read a criticism of the works submitted for the prizes and studentships, 1910-11; (5) presentation of prizes by the President. 8 p.m.

Royal Society of Arts (Cantor Lecture).—Mr. F. Wedmore on "Etching: II.—Modern Work." 8 p.m.

Royal Academy (Sculpture Lectures).—Professor W. R. Colton, A.R.A., on "The Sculptor." 4 p.m.

London Institution.—Mr. R. W. A. Brewer, F.R.S.E., on "The Art of Aviation." Lantern slides and experiments. 5 p.m.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "English Mediæval Sculpture and Ornament." 5 p.m.

TUESDAY, JANUARY 31.

University of London (British Museum).—Mr. Banister Fletcher on "Roman Theatres and Amphitheatres." 4.30 p.m.

Institute of Sanitary Engineers (Students' Lecture).—Mr. R. Horton on "Lighting." 7 p.m.

Institution of Civil Engineers.—Papers to be further discussed:—(1) "Sand-movements at Newcastle Entrance, N.S.W.," by Mr. Christopher W. King; (2) Fremantle Harbour Works, Western Australia," by Mr. C. S. Russell Palmer; (3) "The Bar Harbours of New South Wales," by Mr. Gerald H. Halligan. 8 p.m.

WEDNESDAY, FEBRUARY 1.

Royal Archæological Institute (in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W.).—Mr. J. W. Willis Bund, M.A., F.S.A., on "Ancient Bridges and their Impending Destruction." With lantern illustrations. 4.30 p.m.

Carpenters' Company (Arts Connected with Building).—Mr. Henry Tanner, jun., on "The Art of the Woodworker." 7.45 p.m.

Edinburgh Architectural Association. — Associate meeting. Lantern night. 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

London County Council Westminster Technical Institute.—Mr. W. T. Creswell, F.S.I., on "The Taxation of Land Values"—III. 8.30 p.m.

THURSDAY, FEBRUARY 2.

Society of Antiquaries.—8.30 p.m.

Royal Academy (Lectures on Sculpture).—Professor W. R. Colton, A.R.A., on "Education and Art." 4 p.m.

London Institution.—Professor Silvanus P. Thompson, D.Sc., on "Life and Work of Lord Kelvin." Illustrated. 6 p.m.

Royal Institute of the Architects of Ireland.—General meeting.

FRIDAY, FEBRUARY 3.

Leicester and Leicestershire Society of Architects.—Mr. Ald. A. E. Sawday, J.P., F.R.I.B.A., on "The Town Estate." 8 p.m.

Birmingham Architectural Association.—"A Few Notes on Irish Architecture," by Mr. R. M. Butler.

London County Council Westminster Technical Institute (Vincent-square).—Mr. J. S. Dow, A.C.G.I., B.Sc., on "Illumination"—IV. 7.30 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Mr. Vernon Constable on "Some Buildings of Paris." Illustrated. 8 p.m.

Royal Sanitary Institute.—Provincial sessional meeting Town Hall, Bradford, at 2.30 p.m. Visit to the Open Air School, Thackley, by special tramcar. At 7.30 p.m. discussion will take place in the Council Chamber, Town Hall, on "School Clinics," to be opened by Mr. L. A. Williams, M.D., D.P.H. 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Vernon-Harcourt lectures on "Rivers and Estuaries," by Mr. W. Henry Hunter. 8 p.m.

SATURDAY, FEBRUARY 4.

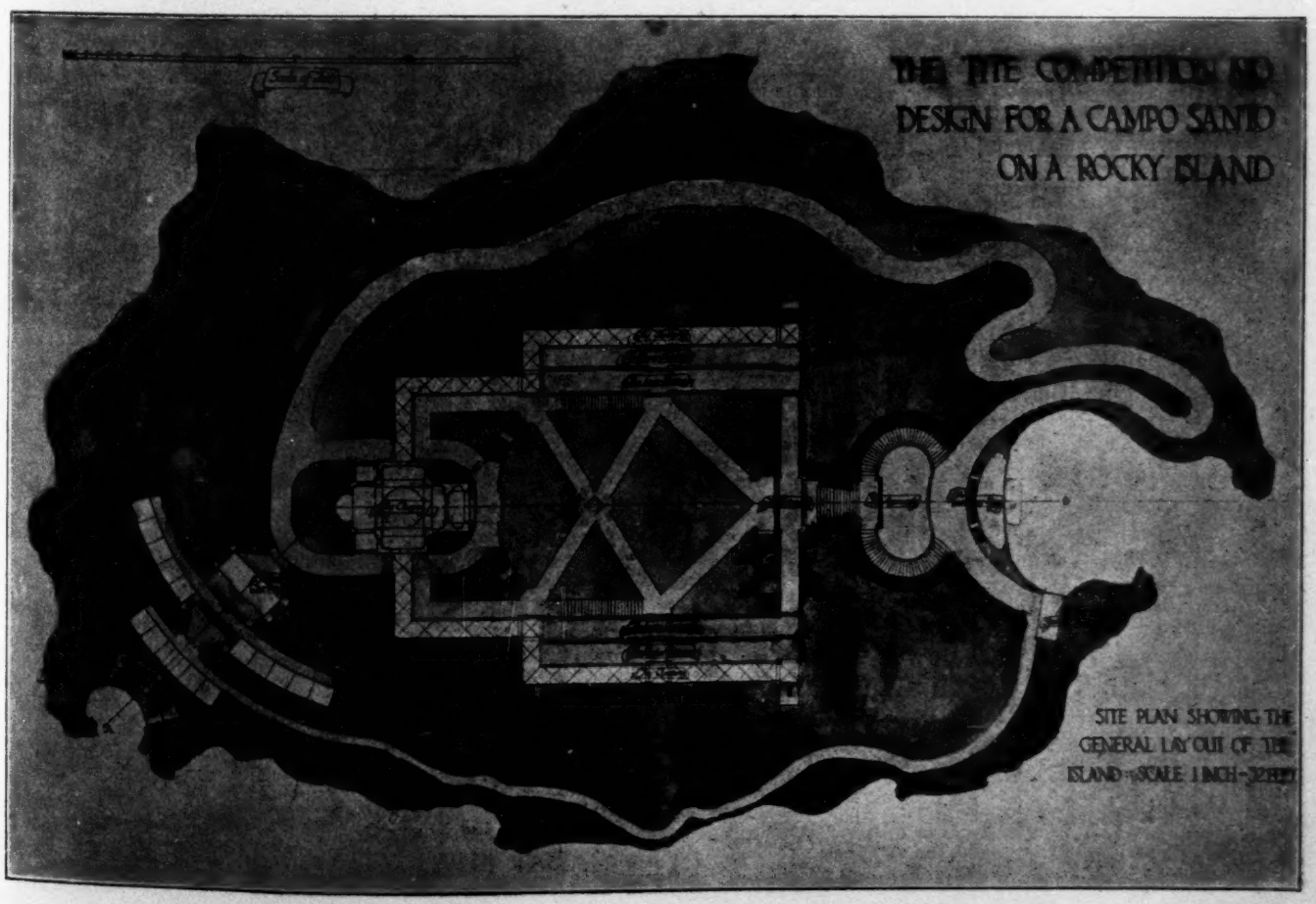
Royal Sanitary Institute (Bradford Meeting).—Members will meet at the Town Hall, Bradford, to inspect the School Clinic. 9.45 a.m. Visit to the Municipal Dairy, at Heaton. 10.45 a.m.

ILLUSTRATIONS.

The R.I.B.A. Students' Drawings.

ALL our illustration plates this week are devoted to the Royal Institute of British Architects' Tite Prize Competition drawings. Some observations on the designs will be found in our leading article last week.

In a future issue we shall give some of the Soane Competition drawings, including the prize design.


THE TITE COMPETITION NO
DESIGN FOR A CAMPO SANTO
ON A ROCKY ISLAND
SITE PLAN SHOWING THE
GENERAL LAY OUT OF THE
ISLAND SCALE 1 INCH = 32 FEET

R.I.B.A. Tite Prize Design. By Mr. G. H. Foggitt.

FIFTY YEARS AGO.

From the *Builder* of January 26, 1861.

The Building Trades.

WE have received a report of "a Conference of Delegates from the Building Trades," held in the Temperance Hall, Derby, on January 1 to 4, "to consider the best means to be adopted for obtaining the proposed reduction in the hours of labour." The following is the principal resolution passed:—"That the object and purpose of the Association be defined generally to be, the reduction of the Hours of Labour in the Building Trades to fifty-four hours per week, either as a uniform maximum of nine hours as a day's work, or otherwise, as each locality shall determine."

*** This is our note at the time on the movement referred to by the President of the Institute of Builders in his speech on the Dinner of the Institute reported in another column this week.—ED.

COMPETITION NEWS.

Bangor and Beaumaris Union.

WE note that the Guardians of this union, in inviting applications for the post of architect for their proposed Infirmary, ask that terms should be stated. We trust that all applicants will adopt the only dignified and proper course in this, namely, that of referring the Guardians to the Royal Institute of British Architects' scale of charges.

Penistone Free Library Competition.

We are requested to state that, owing to the very large number of applications, the committe have decided to restrict their competition to architects within thirty miles of Penistone, and that plans must be sent in by March 1.

House and Cottage Exhibition, 1911.

We understand from the Exhibition Committee that the result of the Architectural and Building Competition for houses and cottages to be erected in Gidea Park this summer has been of a very satisfactory kind. More than 300 architects submitted designs for houses and cottages, of which about 100 will be erected. The entries for the competition for a town plan in Gidea Park remain open until March 31. The first prize is 100*l.*, the second prize 50*l.*, and there is a special prize of 25*l.* for a perspective drawing. The area to be planned is approximately 300 acres, intersected by the Romford golf course and the Roman road leading to Romford.

INTERCOMMUNICATION COLUMN.

Wall Pointing.

SIR,—A wall facing south, built and pointed in 1907, shows considerable signs of the pointing crumbling away. It was built by contract, and supposed to be good-class work. Can either the builder or the architect be held legally responsible, or be compelled to repoint at their own expense? L. P.

Smoky Chimneys.

SIR,—There are so many smoky chimneys that a few hints on the subject might be useful. Straight flues are often the cause. Long chimneys are better with one easy bend in the flue.

Short chimneys should have two bends. The chimney pots or caps should be formed so as to deflect the wind.

Chimney tops, where they are over-topped by houses, cliffs, or hills, should have a cover on the top so that the wind does not blow down.

There are several chimney pots made in terra cotta for this purpose which are more lasting than zinc or iron cowls, and not so unsightly.

The brickwork of outside chimney flues should have two coats of silicate to keep them dry and warm.

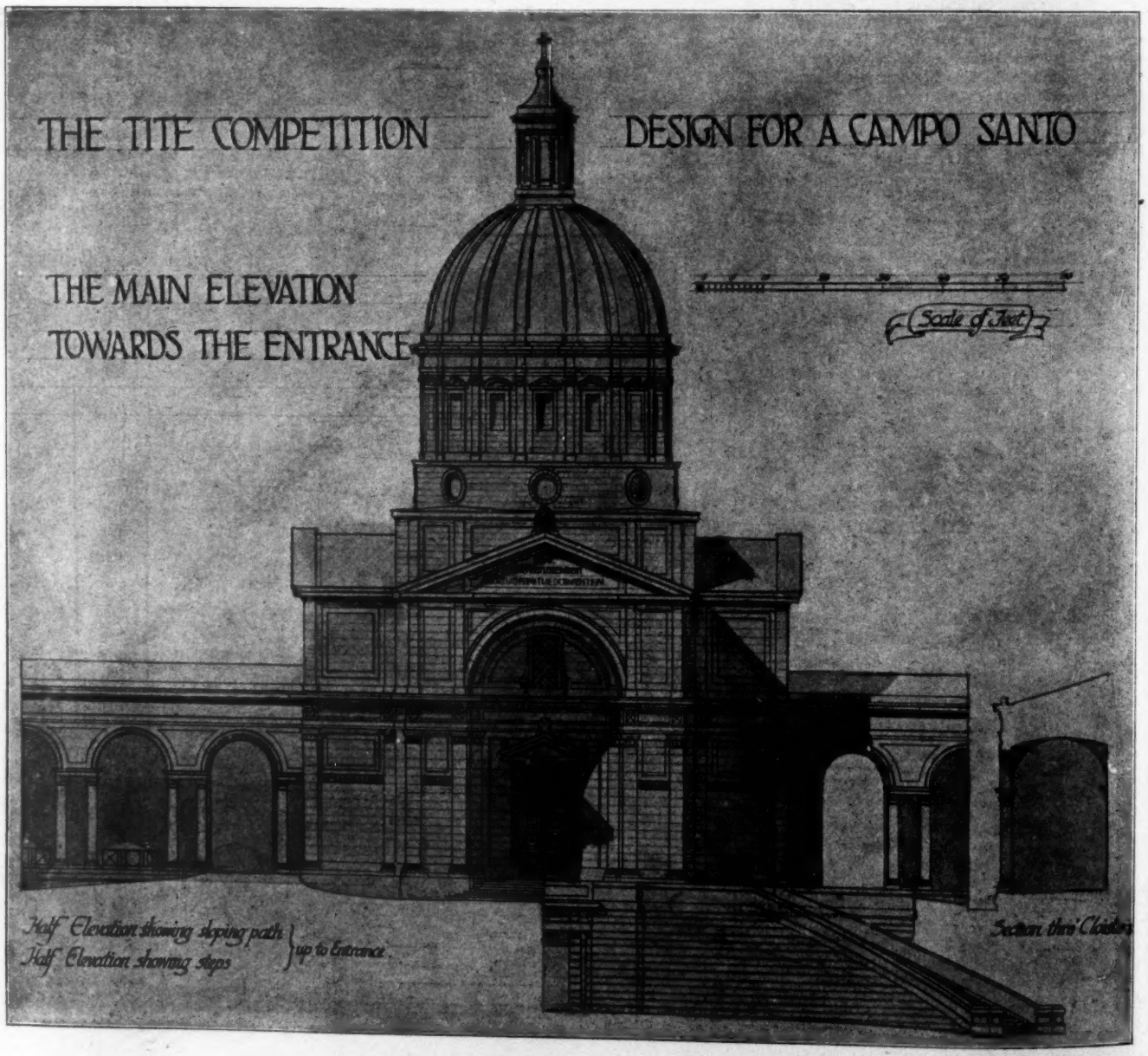
With good register stoves and kitcheners, if these suggestions are carried out, there ought to be very few smoky chimneys, although some people put up with them as incurable.

A RETIRED ARCHITECT.

BOOKS RECEIVED.

SPON'S ARCHITECTS' AND BUILDERS' POCKET PRICE BOOK AND DIARY FOR 1911. Edited by Clyde Young and Stanford M. Brooks. Pp. 351. (E. & F. N. Spon, Ltd. 2s. 6d. net.)

SPON'S ARCHITECTS' AND BUILDERS' POCKET BOOK: MEMORANDA SECTION. Edited by Clyde Young and Stanford M. Brooks. Pp. 372. (E. & F. N. Spon, Ltd. 2s. 6d. net.)



R.I.B.A. Tite Prize Design. By Mr. G. H. Foggitt.

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DESIGN FOR A CAMPO SANTO.

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THE TITE COMPETITION 1910

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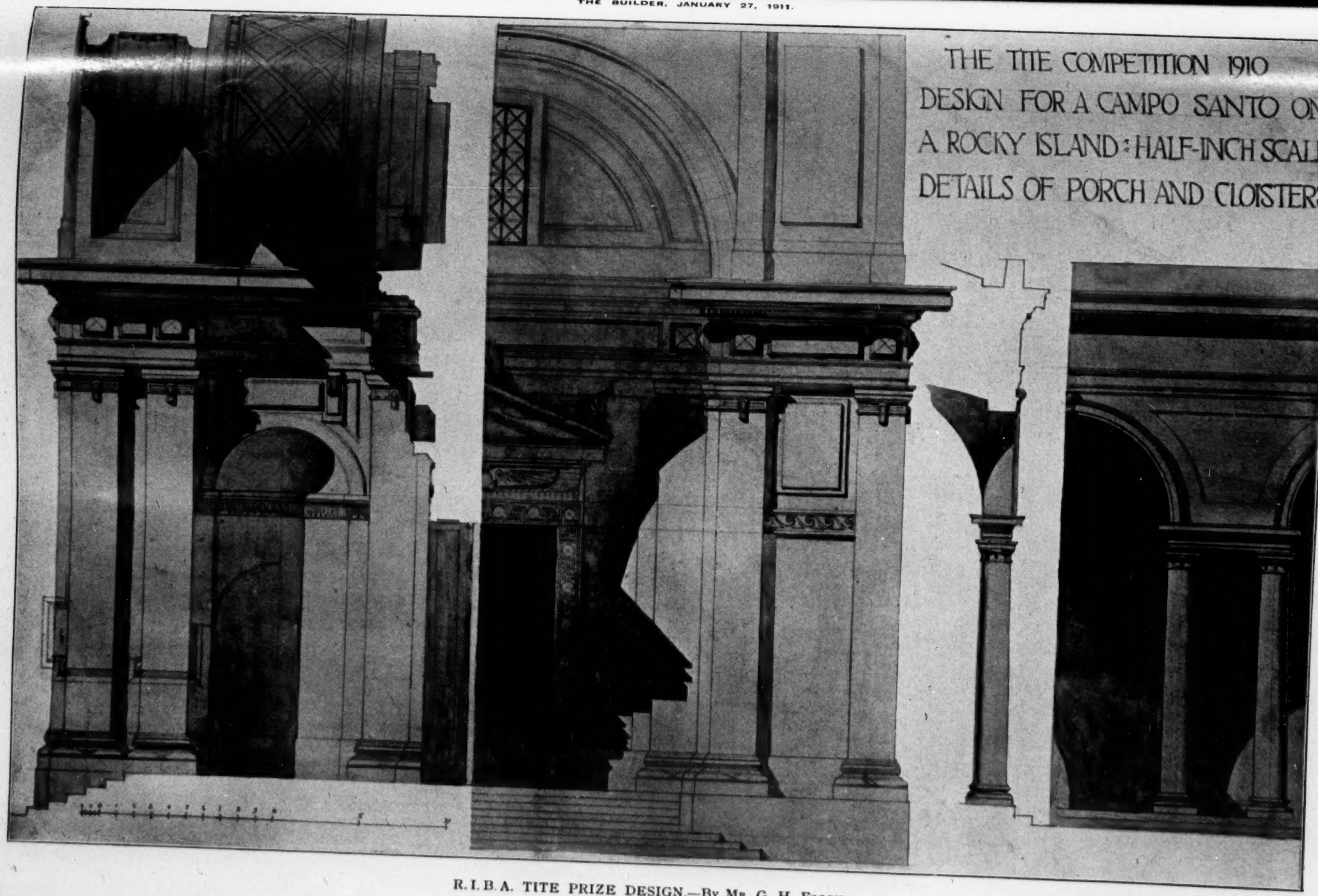

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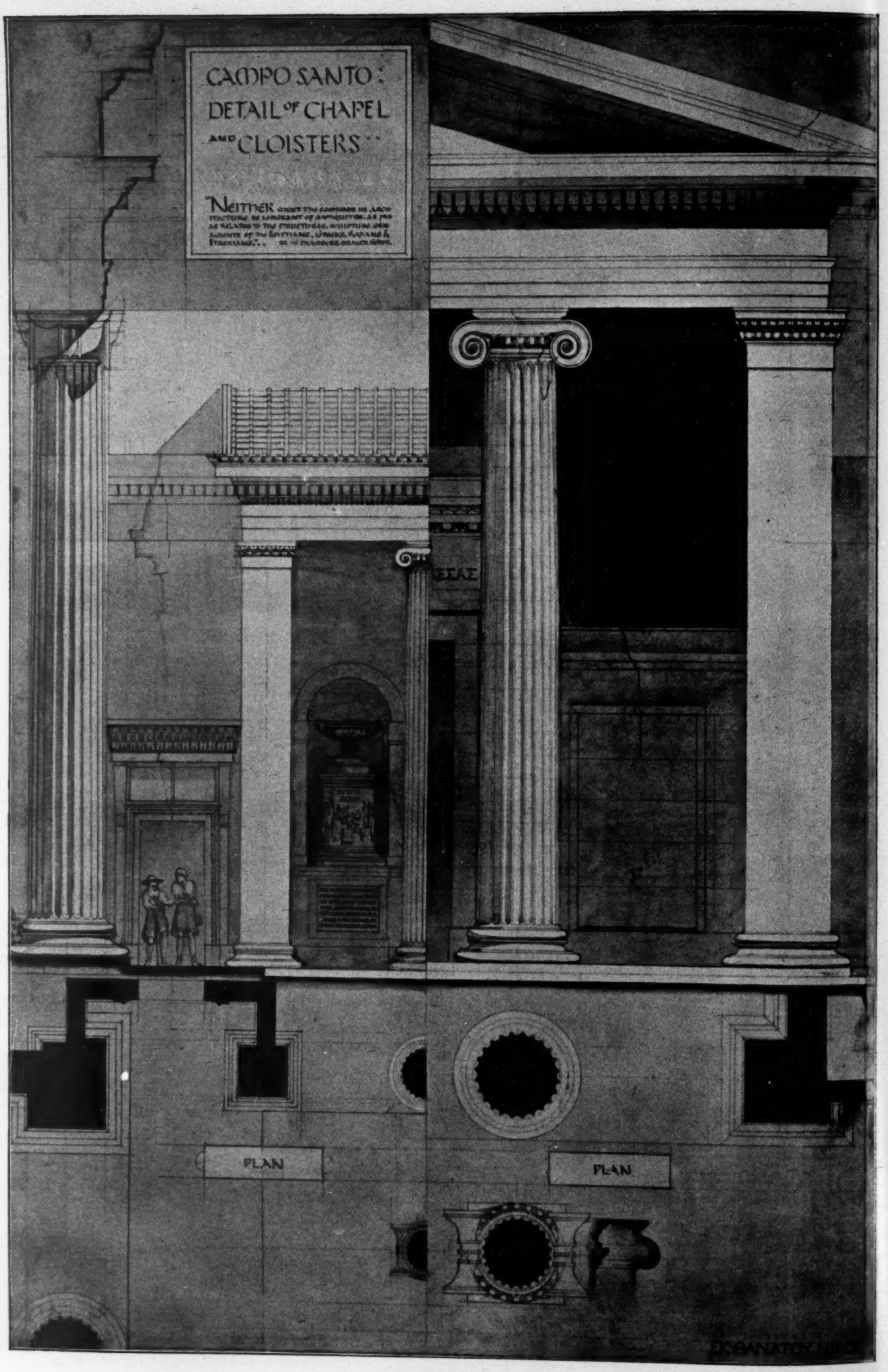

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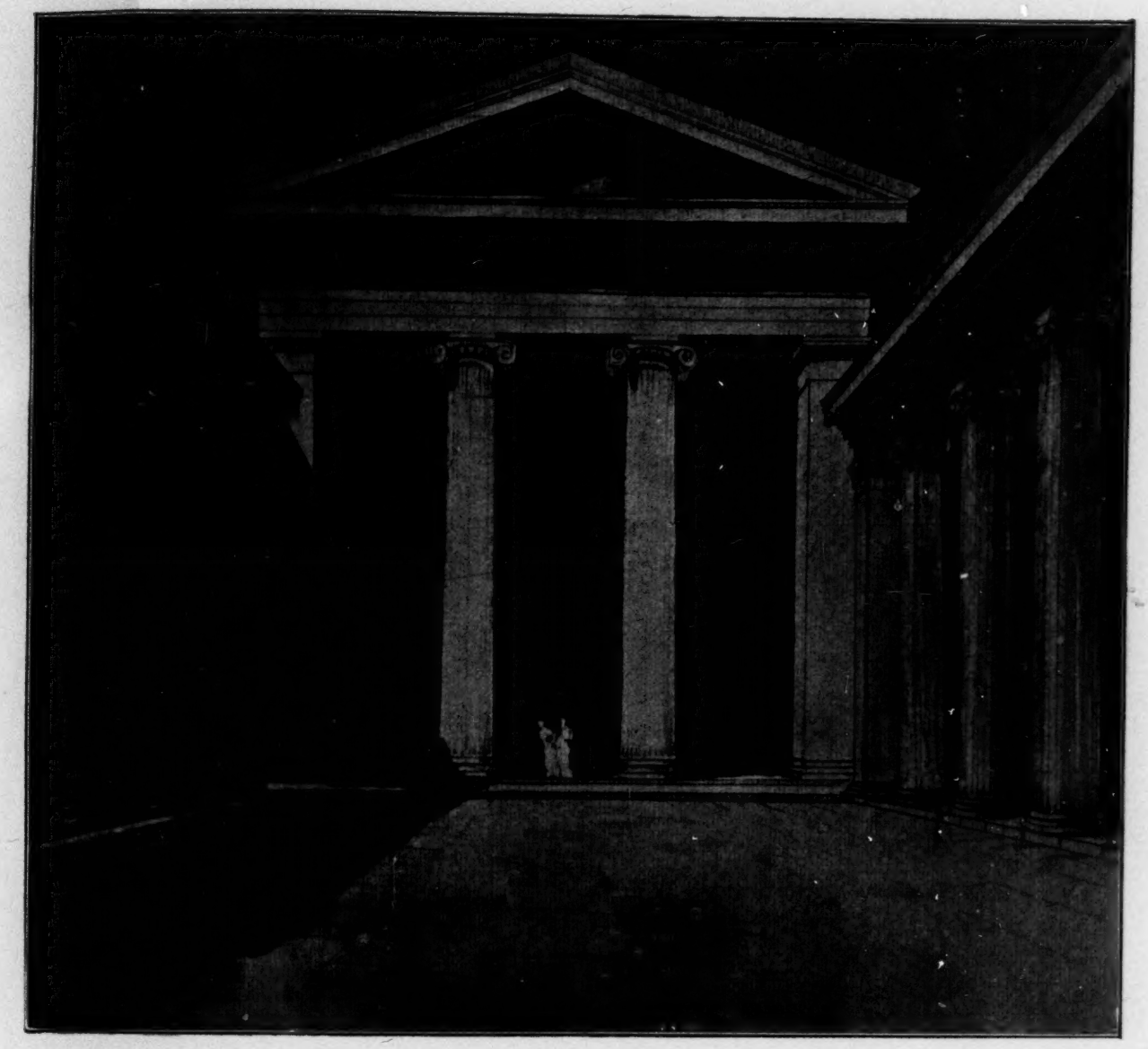
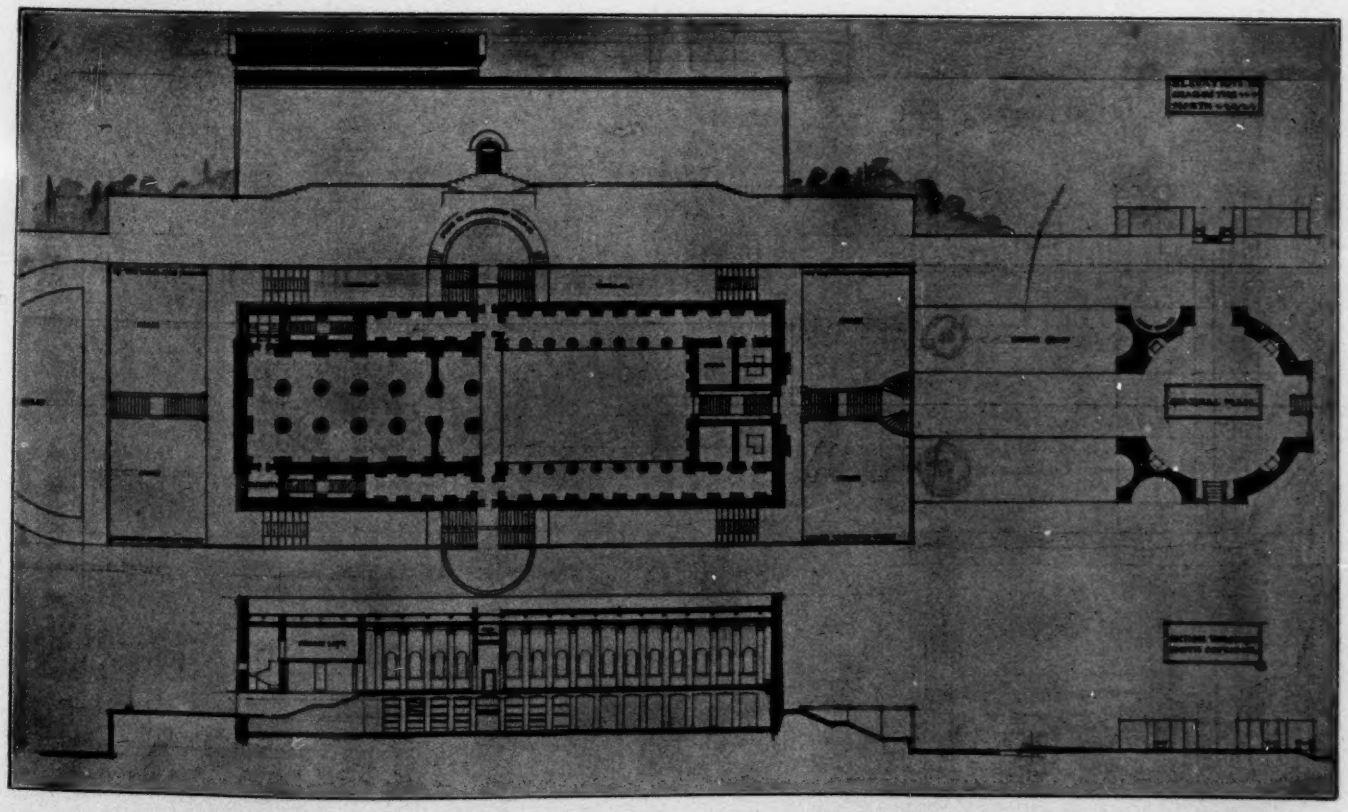


VIEW IN COURT.



PLAN, ELEVATION AND SECTION.

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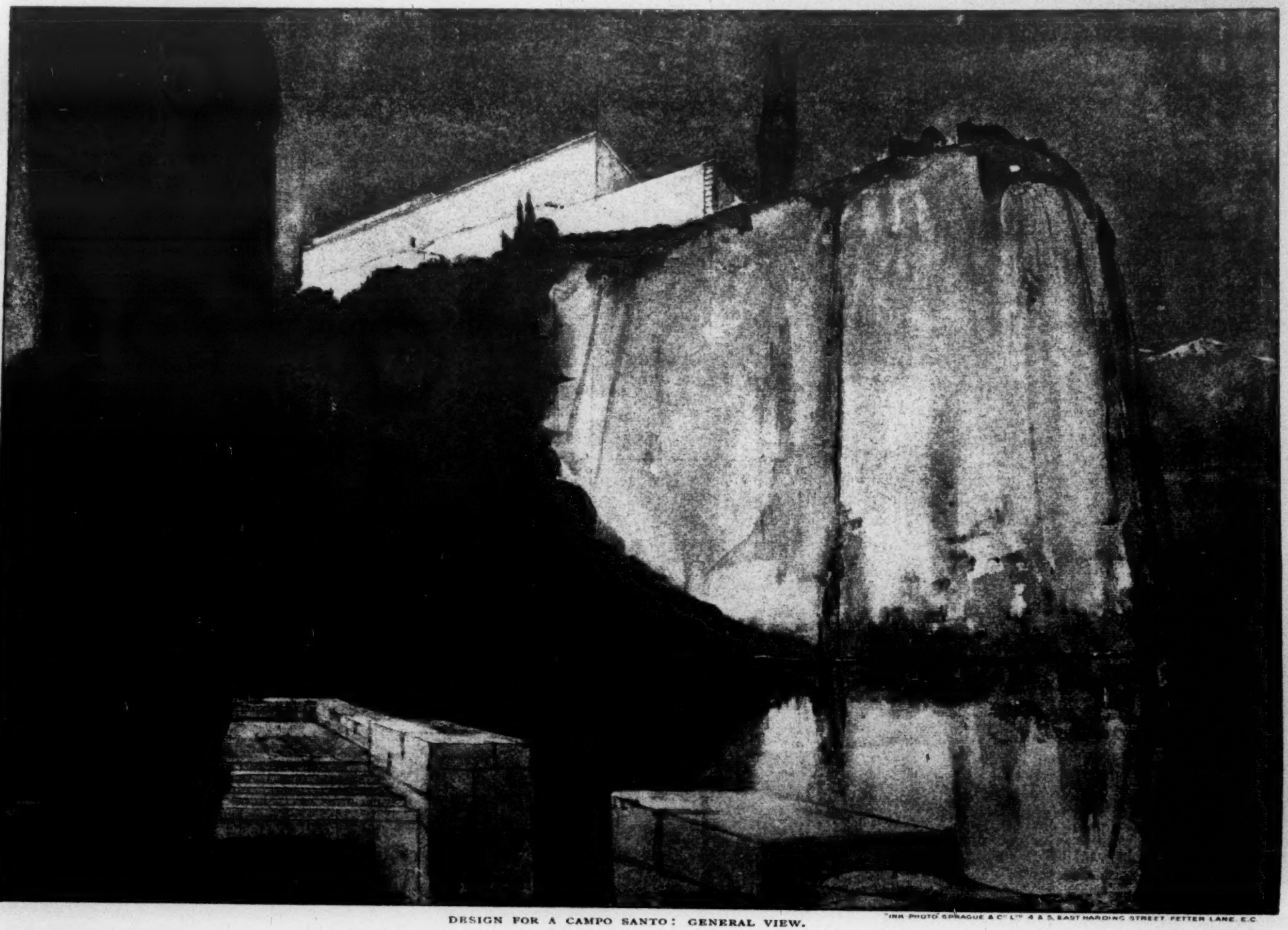

DESIGN FOR A CAMPO SANTO: GENERAL VIEW.

R.I.B.A. TITE PRIZE: CERTIFICATE OF HON. MENTION.—MR. W. G. NEWTON

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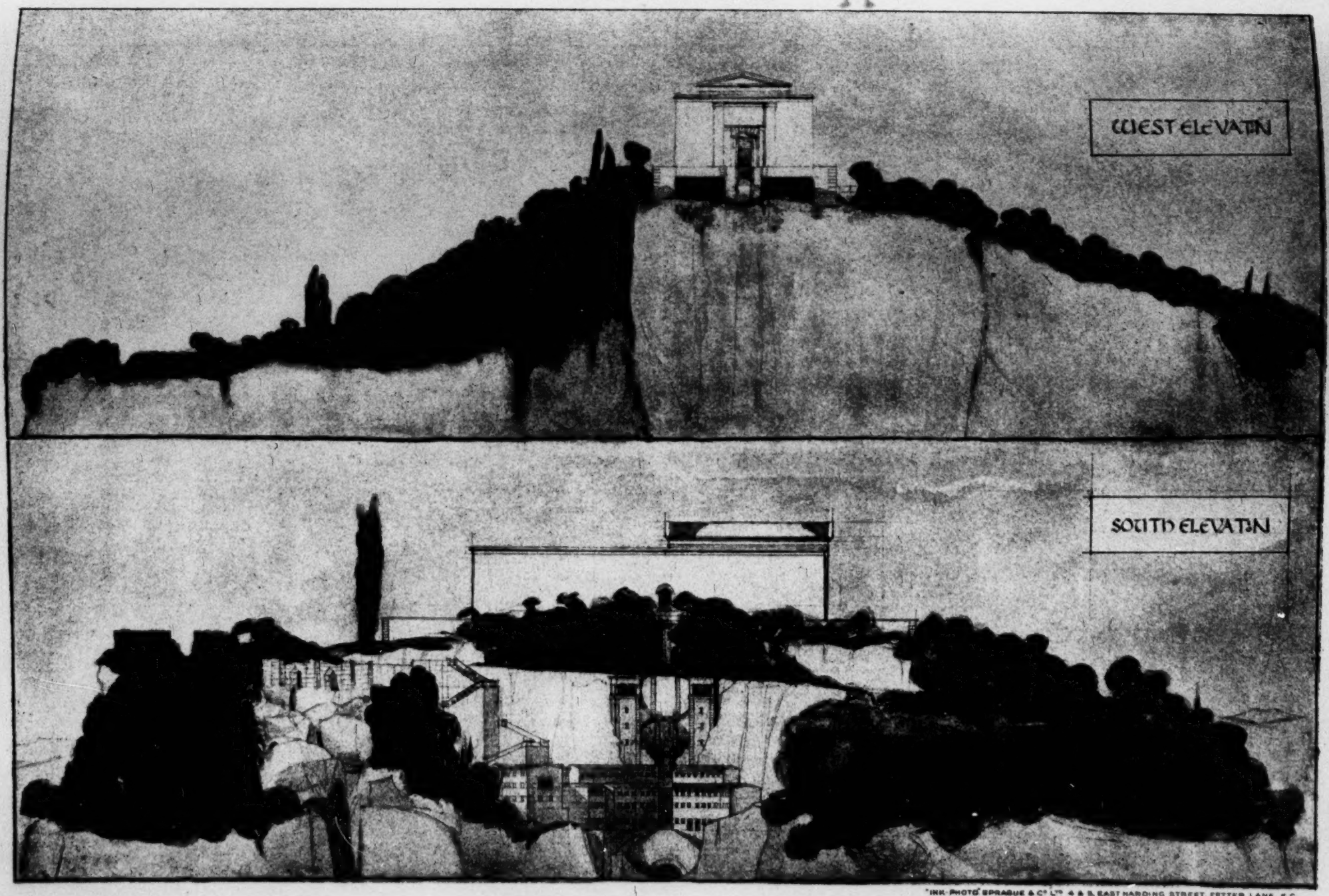

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DESIGN FOR A CAMPO SANTO: ELEVATIONS.

R.I.B.A. TITE PRIZE: CERTIFICATE OF HON. MENTION.—MR. W. G. NEWTON

MONTHLY REVIEW · *of* · ENGINEERING.

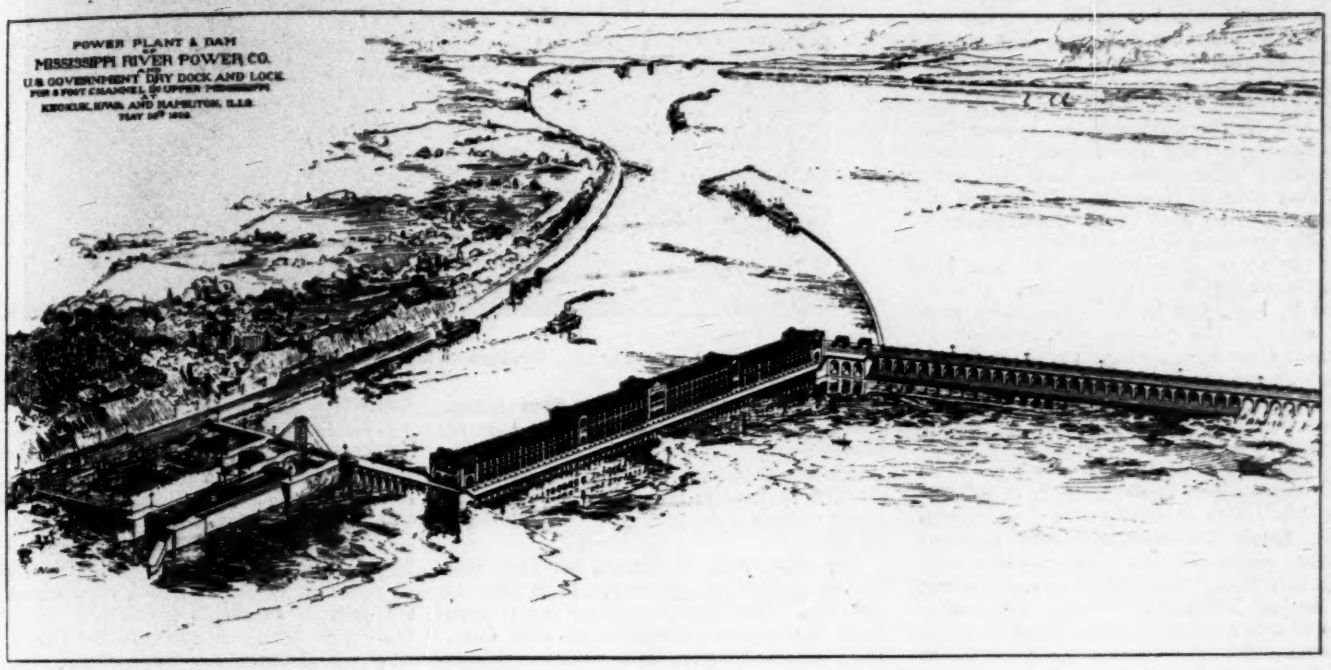


Fig. 1. Mississippi Dam. General View.

THE MISSISSIPPI DAM.

AN important engineering work now in progress between Keokuk, Iowa, and Hamilton, Illinois, is the construction of a masonry dam across the Mississippi at the foot of the Des Moines rapids. The width of the river is nearly seven-eighths of a mile, and after completion of the dam, the Government canal built to carry shipping around the rapids will be entirely obliterated by a lake of deep water 40 miles long by about a mile wide.

The primary object of the work is the generation of electricity to the ultimate extent of 200,000 horse-power, the first long-distance transmission line contemplated being one to St. Louis, 170 miles south of Keokuk, where 40 per cent. of the energy to be developed has already been bespoken. As the power market widens, other lines will be laid radiating from Keokuk and Hamilton.

The dam, including abutments, will be 4,700 ft. long, with a spillway section 4,400 ft. in length. Commencing at the Keokuk end of the spillway dam, the power-house will be 1,400 ft. long by 123 ft. wide by 133 ft. high from foundation level, its axis being perpendicular to that of the dam, and approximately parallel to the river bank. Between the down-stream end of the power-house and the shore a large navigation lock will be built, and in connexion with this a dry-dock for the construction and repair of vessels.

Fig. 1 is a perspective showing the navigation facilities, the power-house, and part of the main dam, a cross-section of which is given in Fig. 2.

At the site chosen the bed of the river affords a sound rock foundation, from which the dam will be built up in mass concrete without reinforcement of any kind. The base of the dam is to be 43 ft. across, and the concrete structure will rise to the height of 37 ft. above foundation level. The up-stream face is vertical, and the down-stream face an ogee curve, the crest a parabola, over which water will flow, and the down-stream toe protected by a curved talus to direct the water horizontally away from the foundations.

On the top of the spillway will be placed 116 steel flood-gates, each 30 ft. wide by 11 ft. high, supported by concrete piers 29 ft. wide by 8 ft. thick. These piers will be built monolithic with the dam and carried down to bed rock on the up-stream side. The piers also support an arched bridge, when the flood-gates will be operated by electric hoists so as to maintain a constant water level in the lake at all seasons of the year.

The substructure of the power-house will

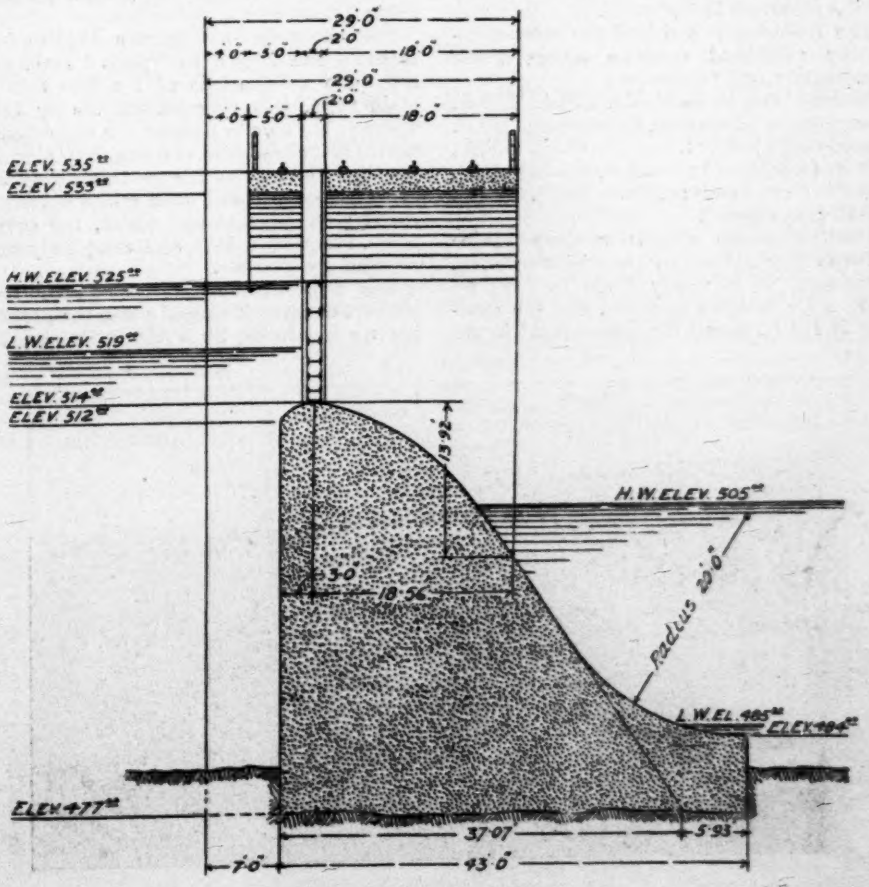


Fig. 2. Mississippi Dam.

be in mass concrete, wherein will be formed the water passages and turbine chambers. The superstructure, to be built of concrete, steel, and brick, will provide accommodation for the electricity generators, transformers, switchboards, and other equipment.

Each of the thirty generating sets will comprise a vertical steel shaft connected at the lower end with two turbines and at the upper end with the dynamo. The weight of the moving parts will be carried on a thrust-bearing situated in a chamber immediately below the dynamo. Each generating unit will be provided with an independent speed-governor and the requisite auxiliary apparatus. The operating head of water will vary from 35 ft. down to 21 ft., and the machinery is designed for the development of 250,000 mechanical horse-power.

In order to keep floating ice and logs from entering the power-house, a wall, 2,800 ft. long, will be built up-stream from the end of the power-house, curving in towards the shore, as represented in Fig. 1. Although appearing to the eye as a solid pier fencing off the power-house from the river, the wall will be pierced by arched openings below the surface so that water may find its way to the power-house.

At the present time the work of excavation is in active progress under the direction of Mr. Hugh L. Cooper, who is the engineer mainly responsible to the Keokuk and Hamilton Water Power Company, for whom the project is being executed. The magnitude of the works may be gathered from the statement that the materials of construction will include 500,000 barrels of cement and 7,000 tons of steel.

GRAFTON BRIDGE, NEW ZEALAND.

REINFORCED CONCRETE ARCH OF 320-FT. SPAN.

GREAT strides have been made during recent years in the construction of long-span reinforced concrete arches. Several of these are to be found in the United States, but at the present time the place of honour must be accorded to New Zealand, where the recently completed Grafton Bridge comprises a main arch 40 ft. longer than any similar structure in the world.

The following is a list of the most noteworthy reinforced concrete arches under construction and completed :—

Walnut-lane, Philadelphia, U.S.A., 233 ft. (completed); Sitter-road, Switzerland, 259 ft. (completed); Rocky River, Cleveland, U.S.A., 280 ft. (completed); Grafton, New Zealand, 320 ft. (completed); Albero Bello, Rome, 330 ft. (in progress).

Grafton bridge crosses a deep ravine between Symond's-street and Grafton-road, Auckland. It is nearly 1,000 ft. long by 36 ft. wide between parapets, and the roadway is 174 ft. above the lowest point in the ravine. The lengths of the various spans, starting from Symond's-street, are as follows :—

Girder spans—(1) 35 ft., (1) 37·5 ft., (4) 75·5 ft. (each); main arch—(1) 320 ft.; girder spans—(1) 75·5 ft., (1) 80·5 ft., (1) 42 ft.

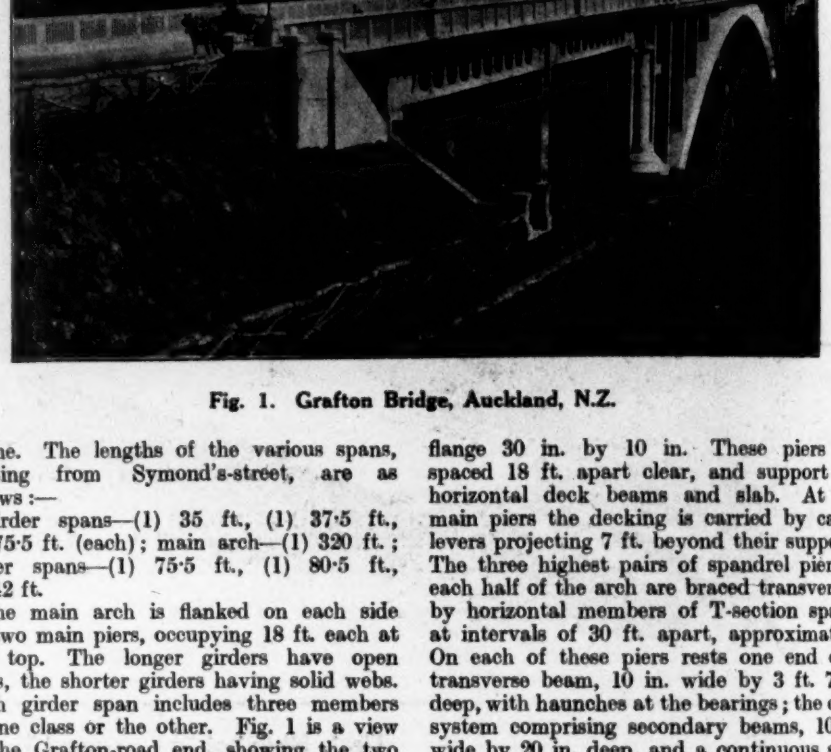


Fig. 1. Grafton Bridge, Auckland, N.Z.

The main arch is flanked on each side by two main piers, occupying 18 ft. each at the top. The longer girders have open webs, the shorter girders having solid webs. Each girder span includes three members of one class or the other. Fig. 1 is a view at the Grafton-road end, showing the two approach spans in the foreground.

The main feature of the bridge is evidently the great central arch, whose proportions and general character may be gathered from Fig. 2. The arch, with the rise of 64 ft., is of the three-hinged type, and consists of two parallel ribs measuring 6 ft. by 4 ft. 2 in. at the springings, and 5 ft. by 4 ft. at the crown, connected by transverse ties, 8 ft. 4 in. by 1 ft. 8 in., haunched 18 in. each way into the ribs and spaced 21 ft. apart centre to centre, measured horizontally. The end hinges rest on solid concrete skewbacks with a small proportion of reinforcement, the quantity of concrete in the main abutments being 720 cubic yds.

The abutments rest upon a local variety of sandstone known as "papa" rock, and are quite independent of the two sets of main piers, this arrangement having been adopted in order to prevent the communication of movement from one structural element to the other. The hinges themselves are of cast steel, and rest upon grilles formed of rolled steel I-beams and plates, the centre grille being built into and completely surrounded by concrete.

The superstructure of the main arch consists of seven T-shaped piers, the projecting rib measuring 36 in. by 6 in. and the flange 30 in. by 10 in. These piers are spaced 18 ft. apart clear, and support the horizontal deck beams and slab. At the main piers the decking is carried by cantilevers projecting 7 ft. beyond their supports. The three highest pairs of spandrel piers in each half of the arch are braced transversely by horizontal members of T-section spaced at intervals of 30 ft. apart, approximately. On each of these piers rests one end of a transverse beam, 10 in. wide by 3 ft. 7 in. deep, with haunches at the bearings; the deck system comprising secondary beams, 10 in. wide by 20 in. deep, and a continuous slab, 6 in. thick.

The curb is situated over the outer longitudinal beam in each case, the footpaths being carried by cantilever projections from the transverse beams. These cantilevers are connected longitudinally by secondary beams, 6 in wide by 18 in. deep, and the footpath construction is completed by a continuous deck slab, 5½ in. thick.

The open web girders in the approach spans are of the continuous type, 15 in. wide by 9 ft. deep. They are supported at the ends on steel plates, and at the middle by rectangular columns, as represented in Fig. 1. These columns are 5 ft. by 4 ft. in cross-section, and are connected at the top by transverse beams.

At the Symond's-street end of the bridge the four 75 ft. 6 in. spans are formed by a continuous girder freely supported at the ends on steel plates, in order to provide for expansion and contraction. The girders are anchored into the three intermediate piers, the hypothesis being that the middle pier will remain stationary under all temperature conditions, and that the outer piers will have sufficient elasticity to withstand any temperature stresses developed.

The two shorter approach spans at the Symond's-street end, and the short approach span next to Grafton-road, comprise girders 15 in. wide by 45 in. deep, connected transversely by secondary beams, 6 in. wide, 18 in. deep, at the ends, and 30 in. deep at the middle, the ends of these beams being extended in the form of cantilevers for supporting the footpaths. The decking slab is 6 in. thick beneath the roadway, and 5½ in. thick beneath the footpaths.

Between parapets the bridge is 36 ft. wide, providing a roadway of 24 ft. paved with asphalt, and two 6-ft. footpaths. The parapets are 4 ft. 9 in. high, and, like all other parts of the structure, are composed of reinforced concrete.

In the parapet coping iron pipes are embedded to receive electric light cables, serving twenty-six lamps, each containing two 25-candle-power metallic filament lamps, the standards consisting of cast-iron pillars.

Provision for cleansing the roadway and footpaths has been made by carrying galvanised iron water-pipes as far as the main piers, hydrants being fixed in the parapets for the attachment of hose-pipes.

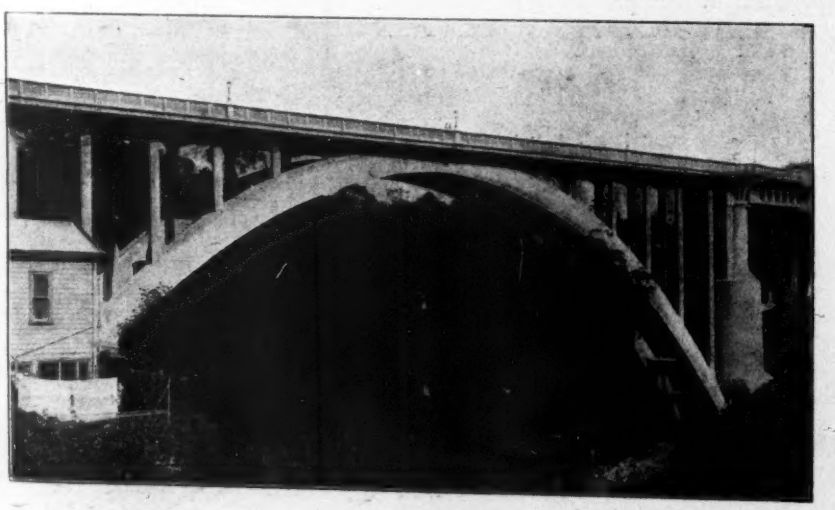


Fig. 2. Grafton Bridge, Auckland, N.Z. Main Span.

The construction of the bridge occupied about two years and a half, and was undertaken by the Ferro-Concrete Company at the contract price of 31,918*l*. Very large quantities of timber were required for moulds and centring, the false works for the main arch alone having accounted for some 400,000 superficial ft., mainly of West Australian jarrah and Oregon pine.

One interesting feature of the centring was the employment of screw-jacks for striking, in place of sand-boxes, some 160 jacks having been used with perfectly satisfactory results, but it should be noted that slack blocks and wedges were used to supplement the jacks and to take most of the weight during construction.

The main arch ribs were moulded in sections, or voussoirs, the deposition of the concrete in each rib only occupying fourteen working days, in addition to four days which elapsed between the moulding of the first and second series of voussoirs.

Some idea of the important dimensions of the work may be gathered from the following list of materials used:—Steel for reinforcement and other purposes, 330 tons; Portland cement, 1,130 tons; broken stone for concrete, 2,100 cubic yds.; shingle for concrete, 4,050 cubic yds.

Tests conducted after completion of the work were performed by loading one-half of the bridge with the distributed load of 113½ lb. per square foot, and then by running across the structure two 16-ton steam-rollers.

The maximum deflection measured as the result of the first test was ½-in., but owing to the length of time occupied during the placing of the load and the concurrent temperature changes, this figure is necessarily a somewhat uncertain quantity. As the result of the moving load test, the maximum deflections indicated were found to be $\frac{1}{1\frac{1}{2}}$-in. on the main arch, and $\frac{1}{1\,8}$-in. on the girder spans.

We are indebted for the particulars embodied in this article, and also for the photographs reproduced, to Mr. Walter E. Bush, A.M.Inst.C.E., the City Engineer of Auckland, by whom the bridge was designed.

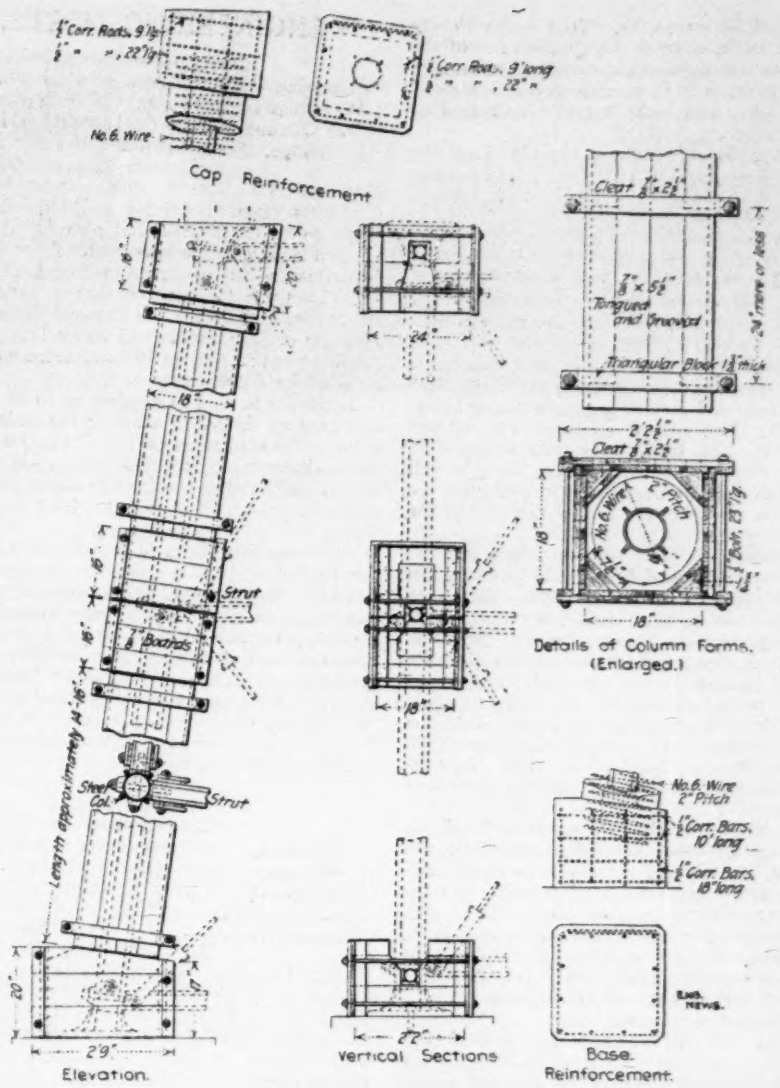


Fig. 1. Steel Trestles.

SHEATHING STEEL TRESTLES WITH REINFORCED CONCRETE.

An example illustrating the employment of reinforced concrete for strengthening existing bridges is furnished by the case of the steel approach viaducts connected with the St. Charles Bridge carrying the Wabash Railway over the River Missouri. The river spans of the bridge, 2,177 ft. long, were rebuilt between 1880 and 1885, and comprise four Whipple and three Warren trusses. The approach viaducts were constructed in 1884, and consist of steel trestle towers with the maximum height of 45 ft., connected at the top by timber stringers. The total length of the bridge, including the trestle approaches, is 6,541 ft. Originally designed for the moving loads prevailing at the time, the trestles were quite inadequate for modern traffic requirements, and it was therefore decided to strengthen both of these structures. As a first experiment the columns, which were built up of Phœnix segments, were filled inside with concrete, the result being to increase their resistance by about 10 per cent. As further strength was absolutely necessary, the chief engineer to the railway company, Mr. A. C. Cunningham, M.Am.Soc.C.E., covered a column, of the same transverse dimensions and construction as the columns in the St. Charles Bridge approaches, with reinforced concrete, and sent this member, together with a 5-ft. length cut from it before treatment, to the University of Illinois, where both specimens were tested under the direction of Professor A. N. Talbot.

These tests demonstrated the fact that the column strengthened with reinforced concrete possessed about double the resistance of the plain steel column.

Before applying reinforced concrete to the approaches as a whole, one tower was encased nearly two years ago and placed under observation for the purpose of ascertaining whether vibration and exposure would cause injury to the sheathing. The results being entirely satisfactory, it was decided to sheath all the other towers.

All the columns were converted into octagonal reinforced concrete columns, of 18 in. diameter, by applying concrete embedding a spiral coil of No. 6 American gauge wire wound with the pitch of 2 in. Fig. 1 shows the details of construction and the moulds employed. The column bases consist of a rectangular concrete block reinforced by a network of steel rods near the outer surfaces.

The struts bracing the four columns in each tower are cased in concrete, as illustrated in Fig. 2, the exterior dimensions being 7½ in. square and the concrete reinforced by eight ½-in. rods, around which is a wrapping of wire netting. The connexions between columns and struts are stiffened by reinforced concrete angle brackets, as shown in Fig. 2.

The diagonal rods, of which parts may be seen in Figs. 1 and 2, were left in place, but not concreted, because they are now unnecessary, and their preservation is not a matter of importance. The concrete used was mixed in the proportions of one part Portland cement to three parts of coarse sand. Figs. 1 and 2 are reproduced from the *Engineering News*, to whom they were furnished, together with particulars of the works, by Mr. A. C. Cunningham, the Chief Engineer to the Wabash Railway.

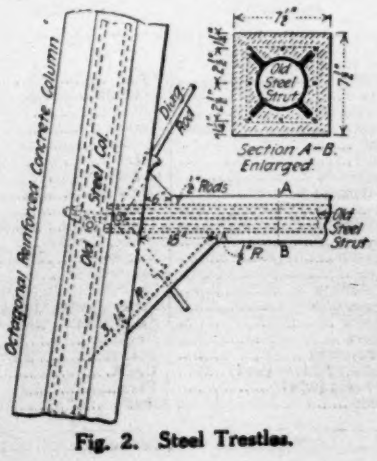


Fig. 2. Steel Trestles.

FOUNDATION PROBLEMS AT BROOKLYN NAVY YARD.

Three dry docks are now available at the Brooklyn Navy Yard; the first, built in 1851 by the late William J. MacAlpine, being of stone and in excellent condition; the second, built in 1890, is of timber and in good condition; and the third, built in 1897, of timber, and repaired with concrete, is in fair condition.

The site of these works is not specially favourable for building operations, as the subsoil consists of mobile quicksand. MacAlpine found the best way of proceeding was to excavate and complete small sections of the work at a time, the wisdom of this method having been thoroughly justified by the lasting success obtained. Later engineers thought they knew better, and attempted the execution of work by making large excavations, thus bringing considerable trouble upon themselves and causing serious injury to buildings in the vicinity of the second and third dry docks.

At the present time a fourth dock is under construction, having been commenced in 1905. The history of the undertaking is one continuous record of disaster, only checked at last by a return to the method long ago adopted by MacAlpine.

Dry dock No. 4 was originally designed to be of mass concrete on timber foundation piles, and sheet piling around the site to prevent lateral flow of the quicksand when under load. The inside dimensions were 542 ft. long by 130 ft. wide by 40 ft. deep, and the amount of the contract was 151,560*l*.

Work was commenced in February, 1905, by clearing away buildings and diverting

sewers and water mains. Trial bores to the depth of 80 ft. showed the composition of the subsoil to be approximately 10 ft. of made ground, 15 ft. to 20 ft. of blue clay, 2 ft. to 5 ft. of quicksand, and beds of gravel and sand of varying depth.

Knowing from previous records that the quicksand was capable, when cut into, of causing subsidence at distances of 50 ft. or more away, the contractors took a great deal of trouble to make the sheet piling an effective barrier. However, after struggling bravely for about two and a half years, during which period some 45,000 cubic yds. was excavated, they gave up in despair, and the contract was cancelled in November, 1907.

At this juncture the Navy Department altered the design by increasing the dimensions of the dock, and including granite lining inside the dock. The second contract was entered into on April 14, 1908, at the price of 250,000*l.*, and the work was undertaken on the side wall trench method, the idea being to construct the side walls in trenches before disturbing the intervening material.

A trench 35 ft. wide by 250 ft. long was cut for the west wall and lined with 12-in. square sheet piles; some 600 foundation piles were driven in the bottom, and the operation of depositing concrete was commenced. All went well for a time, but presently the pressure of earth behind the wall pushed the footings out of place, quicksand and water began to flow into the trench, the ground near the dock subsided, and various buildings were affected. Finally, in October, 1909, the contract was cancelled, and the field was clear for a third start.

Once more the designs were modified by increasing the length of the dock to 700 ft., the width to 120 ft., and the depth to 48 ft., and by providing for a form of substructure intended to obviate the necessity for deep open excavation and to minimise troubles caused by quicksand.

In October, 1909, the third contract, at the sum of 278,000*l.*, was settled, and active operations were at once commenced.

Instead of sheet piling the new design specified a concrete wall sunk in caissons for the purpose of surrounding the site, and subsequently it was decided to abandon the risky work of attempting to maintain an open excavation, 57 ft. below surface level, for the dock bottom long enough to permit the driving of foundation piles to carry the thick concrete slab at first proposed. Consequently the Navy engineers determined to make the slab depth 8 ft. instead of about 17 ft., and to substitute concrete piers sunk in caissons for the timber piles, while, to overcome the upward hydrostatic pressure, it was provided that the slab should be anchored down to the piers by means of steel bars, and that the security of the piers should be increased by extending their base so that the weight of earth above should be added to the dead weight of the concrete.

The surrounding caisson-built wall is well adapted for resisting lateral flow of the quicksand and surface water. It is being constructed in sections, about 36 ft. long by 5 ft. thick, keyed together by concrete poured into circular openings formed by the juxtaposition of semi-circular grooves in the ends of the wall sections.

Owing to previous abortive efforts, the new contractors found the site much encumbered by useless material and plant. These had to be cleared away, while it was also necessary to repair damaged sewers, water mains, and adjacent buildings. Having installed structural plant on an ample scale, the present contractors have made good progress, and it is very satisfactory to record the fact that the method of conducting the work has proved to be entirely satisfactory.

An interesting point is that the dock is now being constructed in general accordance with the principles enunciated nearly fifty years ago by MacAlpine, although with the aid of appliances not then at command. Nevertheless, the undertaking constitutes one more example demonstrating the remarkable ability displayed by engineers at a period when technical colleges and scientific training were practically non-existent.

While not venturing to suggest that all difficulty has been obviated, we may reasonably hope that the work will be completed without serious trouble. Much credit is due to Mr. F. R. Harris, of the United States Navy, for the success which has attended the realisation, so far, of the latest designs for the dry dock.

ENGINEERING NOTES.

Removing the Wreckage of the Quebec Bridge.

SINCE December, 1909, about 5,000 tons of steelwork have been removed from the ruins of the Quebec Bridge, leaving an equal amount for similar treatment. The difficulties of the task are caused, not merely by the enormous mass of twisted and tangled steelwork to be dealt with, but also by the fact that no loose ends are presented. After various experiments, the contractors found the best procedure was to break up heavy parts with dynamite, and to use the oxy-acetylene blowpipe for cutting chords and struts into pieces, weighing not more than 10 tons, which could be handled by derrick cranes.

Dynamite is used in charges up to 80 lb. for breaking up the heavy shoes on the main piers, some of the explosions having thrown fragments to the distance of nearly half a mile. Dynamite is also employed in the form of sticks placed in a row for cutting through steel plates up to 1 in. thick.

Oxy-acetylene flame is found advantageous for lighter work, which it cuts through very quickly, leaving a narrow gap something like a saw cut. As the blowpipe only weighs a few pounds, this method of operation is extremely handy as well as economical. Acetylene gas is generated on the site, and oxygen is delivered in cylinders containing 100 cubic ft. of gas under the pressure of 1,800 lb. per square inch. The average quantity of gas consumed is 10 cubic ft. per ton of steel removed.

Repairing Masonry Bridges in Hamburg with Cement Grout.

CEMENT grout has been used for many years past in making good defective masonry, a noteworthy example being the strengthening of the Delta Barrage, near Cairo, while the Auld Brig o' Ayr is a recent instance. Another is furnished by two bridges in Hamburg, each of 50 ft. span, and carrying four lines of rails over a canal. The arches were cracked in two directions owing to settlement of the abutment foundations, and it was decided to consolidate them by the injection of cement grout under pressure. This operation was carried out in the following manner:—Holes were drilled into the masonry on the line of each fissure, and over the arch ribs steel beams were inserted to support the railway tracks during the setting of the cement. The holes were washed out with clean water, and then grout was injected under the maximum pressure of five atmospheres, which was kept on until water began to penetrate the joints of the masonry. The holes were then closed by wood plugs, which remained in place while the cement hardened. The consumption of cement for the four arches so treated was 42 lb. per cubic yard of masonry, and it is stated that since the execution of the work in November last year not the least movement has been observed in the structures.

The Highest Bridges in the World.

THE subjoined table has been compiled by us from particulars of exceptionally lofty bridges given in the *Engineering News*. Although the category may not be complete, especially near the bottom of the list, it will nevertheless be useful as a record for reference purposes:—

Bridge.	Country.	Class.	Material.	Height.	Length.	Date.
				Feet.	Feet.	
St. Giustina	Tyrol	Road	Steel	460	197	1889
Fades	France	Railway	do.	435	1,330	1909
Victoria Falls	Africa	do.	do.	420	650	1905
Garabit	France	do.	do.	406	1,852	1884
Viaur	France	do.	do.	380	1,508	1902
Namti	China	do.	do.	350	220	1908
Muengsten	Germany	do.	do.	350	1,525	1897
Rio Grande	Costa Rica	do.	do.	340	800	1902
Loa	Bolivia	do.	do.	336	800	1888
Constantine	Algeria	do.	Stone	330	1,500	1910
Pecos	Texas, U.S.A.	do.	Steel	328	2,180	1892
Gokteik	Burma	do.	do.	320	2,260	1900
Sitter	Switzerland	do.	do.	315	394*	1910
Lethbridge	Canada	do.	do.	307	5,327	1909
Kinzua (new)	Pennsylvania, U.S.A.	do.	do.	301	2,052	1900
Wiesen	Switzerland	Road	Stone†	289	689	1900
Clifton	England	do.	Iron	285	705	1864
Cerveyrette	France	do.	Steel	280	246	1890
Kentucky River (new)	U.S.A.	Railway	do.	306	1,138	1910
Verrugas (new)	Peru	do.	do.	256	575	1900
Douro	Spain	do.	do.	201	1,157	1877

† Centre span 180 ft. long. * Centre span.

Machine for Scraping Water Mains.

AN appliance about to be adopted for scraping large water mains by the Liverpool Water Committee consists of a revolving knife with four cutters attached to the driving shaft of a machine operated by a petrol motor. The apparatus is lowered into the water main to be scraped through an opening cut for the purpose, the machine running on rails carried by brackets fixed at the ends of the opening. A screw of coarse thread passes through a screwed block in the machine, which can be moved in either direction by turning a hand wheel. After the motor has been started the knife can be fed into the main like the rod of a boring machine, the range of operation being 200 yds. in each direction. The appliance, which was invented by Mr. R. A. Adamson, of the Rivington Waterworks, is said to be capable of scraping mains at the rate of about 50 yds. an hour.

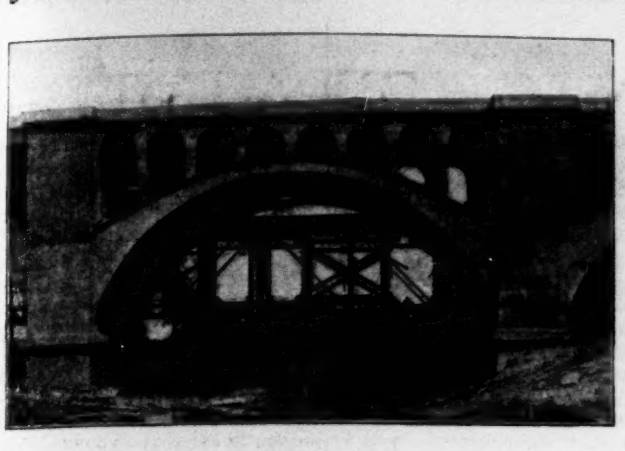
Ingenious Method of Sinking Foundation Piers.

HAVING to sink a number of reinforced concrete piers of 4 ft. diameter with the base diameter of 6 ft. 6 in., an American contracting firm have effected considerable economy by employing steel cylinders, which were driven by a special pile-driver and utilised as cofferdams, wherein timber moulds were set up for the concrete work. After having fulfilled this purpose in the construction of one reinforced concrete pier, each cylinder was drawn up and driven in another place for similar use. The steel cylinders were 50 ft. long by 7 ft. 7 in. in diameter, and weighed 17 tons each. The monkey on the pile-driver weighed 5,000 lb., and the force of the blow delivered was distributed over the cylinder head by a timber dolly of massive construction. The pull necessary for withdrawal of the cylinder was approximately 50 tons.

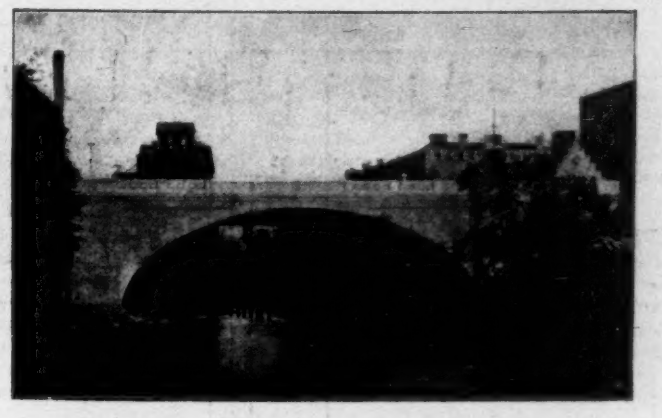
Two American Concrete Bridges.

THE first of the two illustrations here given shows a concrete bridge of the barrel arch type at the town of Fergus Falls, Minnesota, U.S.A., which replaces an old bridge that went suddenly by the board. This bridge spans the Red River of the north, and is of the same width as the road, about 75 ft., and is 95 ft. in span. The cement of which the concrete is composed is reinforced by steel rods. Between the spandrel wall and the abutment pilasters there is an arrangement to permit the expansion of the bridge in length by reason of the heat. This bridge costs about 600*l.* more than an all-steel one of the same dimensions, or to serve the same purpose, but may be regarded as permanent, whereas there is a limit to the life of even the best all-steel bridge. The designer was C. A. P. Turner; the builder, John Lauritzen, under Hans Blegen, City Engineer of Fergus Falls.

The second illustration shows a double-track railway bridge of concrete which replaces one of the old girder type on the Cleveland, Cincinnati, Chicago, and St. Louis Railroad. The original design was for a bridge of concrete without any reinforcement; but for safety the cement was strengthened by steel rods. The bridge is calculated to carry a load of 20,000 lb. per foot of length. The height from the bed of the river to the under side of the



Fergus Falls, U.S.A.



Cleveland and St. Louis Railway.

Two American Concrete Bridges (*see page* 114).

rails is 58 ft., from the under side of the rails to the lowest level of the foundation 73 ft. The foundation rests throughout its entire extent on a bed of coarse gravel. The bridge proper consists of three main arches, each 75 ft. span and 28 ft. in height, the track resting on small flying arches which rest directly on the main ones. The width of the bridge is 42 ft., the total length 397 ft. From each pier there are supporting piers to receive expansion joints for the ceiling and the flying arches. The inner surfaces of the main arches are stiffened with corrugated internal rods 1 in. in diameter and 1 ft. apart, on the intrados and extrados. The ceiling and the flying arches, with their side walls, as well as the abutment pilasters of all piers, are slightly reinforced with iron. There were used in the construction about 8,000 barrels of cement from the Universal Portland Cement Company, of Chicago, and over 82 tons of steel.

New York's Telephonic Future.

"In the plans which we have made for New York and for the other cities in America, it has been found, all things considered, most economical when building new subways to plan for a period somewhere between fifteen and twenty years ahead. Such considerations as these have guided us in making fundamental plans for New York city, which, so far as buildings and subways are concerned, are intended to form a general guide for our construction work which is to take place each year for the next twenty years. These plans are not speculative or paper plans, but we express our confidence in them by following them in the construction which we do each year, putting down not only that which is needed for to-day, but that which, after most careful studies, represents our best judgment of what will be required during a period of twenty years.

It should not be understood, however, that we can forecast with precision the requirements for so long a period ahead, but we have worked with these fundamental plans now for so many years that we know that they form a trustworthy guide, provided that they are continually kept under review and modified each year as the exigencies of growth demand.

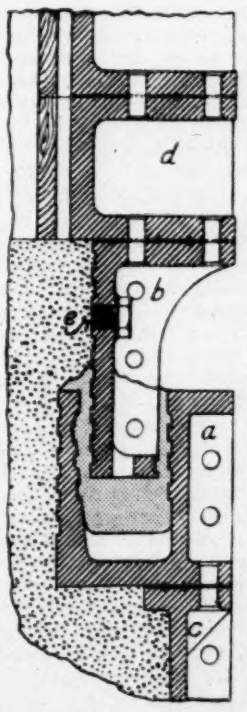
If it would not take me too far away from the subject under debate, I could show to you in many interesting ways the vast sums of money which we have saved because of these fundamental plans. And how absolutely essential they are in enabling us to expend most economically the enormous sums of money which we annually put into our plant.

The fundamental plans for New York, not including the vast suburban region outside of the municipal limits of Greater New York, provided in 1900 for a system of 51,398 telephone stations, served from forty-three central offices, the population of the city being 3,437,000. In 1910 the plans provide for 376,000 stations, served from fifty-two central offices, with an estimated population of 4,800,000. In 1930 the plans provide for 2,142,000 stations, to be served from 109 central offices, with an estimated population of 8,800,000."—J. J. CARTY in the *National Telephone Journal*.

Joint for Cast-Iron Shaft Lining.

In cases where the cast-iron lining of vertical shafts is built up in successive off-sets, a gap remains between the upper and lower surfaces of the successive rings of segments. Such gaps are usually closed by series of oak voussoirs, behind which cement grout is injected. With the object of eliminating these timber joints, each of which constitutes a weak place in the lining, a new type of cast-iron and cement joint has recently been employed in sinking shaft No. 7 at the Dourges colliery. This joint, as described by M. Leroyer in the *Bulletin de la Société de Industrie Minérale*, consists of two cast-iron rings built up of segments and arranged as represented in the accompanying section. The lower ring *a* provides a circular groove into which penetrates the circular tongue projecting from the upper ring *b*, the space between the two elements being filled with cement mortar.

Each ring is composed of six segments, the surfaces coming in contact with the surfaces of the lining above and below being machined so as to insure a perfect joint. The ring *a* is riveted to the lower ring *c*, and the ring *b* to the upper ring *d*. The bulk of the space existing outside the joint is filled with concrete, the absolute filling of all voids being effected by an injection of cement grout through the holes *e*, which are afterwards closed by screw plugs.



Joint for Cast-Iron Shaft Lining.

Reinforced Concrete Bridge at Blackburn.

A new bridge over the Leeds and Liverpool Canal at Blackburn has recently been built to replace an existing arch. Both the width of the roadway and the span of the bridge were greatly increased in order to afford improved facilities for road and canal traffic. The span is now 40 ft., and the width of the roadway 37 ft. between parapets. This bridge was designed by the Patent Indented Steel Bar Company, Ltd., and was constructed under their supervision by Messrs. F. Mitchell & Sons, contractors, Manchester, indented bars being used in the reinforcement throughout. The structure affords an interesting example of the advantages of reinforced concrete, as, in addition to the economy effected, the rise allowed was very slight, only 1-40 of the span, in order to avoid interference with the road gradient. Owing to the situation of the bridge exceptionally heavy loads had to be provided for, and the test load specified consisted of a 14-ton traction engine drawing an 18-ton four-wheel bogey, and a 15-ton engine drawing a 32-ton four-wheel bogey, the maximum test load being 65 tons. During the official tests conducted on December 22 last, not the slightest measurable deflection occurred, and the vibration during the passage of the exceptionally heavy loads was practically imperceptible. The work was executed for Mr. W. Stubbs, A.M.Inst.C.E., the Borough Engineer, under whose personal supervision the tests were carried out.

THE BUILDING TRADE.

PITFALLS AND ERRORS IN ESTIMATING.

FEW contractors can look back upon their business career without being reminded of certain errors in the pricing of the quantities, or of other forms of error, which have placed them in a somewhat invidious position when these have been discovered either before or after the work has been commenced. Some have possibly arisen in the rush of making up an estimate against time, some from errors in "running out" or "casting" which have not been discovered during the checking of the making-up of the bills, while others have been caused by "pitfalls" in the quantities, not intentional, but none the less unfortunate. If intentional—*i.e.*, with the idea of misleading the contractor, although we do not think this is often the case; in fact, never with any honourable professional men—there is no word in the English language sufficiently strong to characterise the practice. True, there are some architects who sometimes raise objections to much detail in the quantities, arguing that this tends to increase the cost of the work. It is just possible that there may be over-elaboration in the preparation of quantities; but we think the general complaint would be in the opposite direction, and in practice it will be found that the closest list of tenders is that based upon quantities which are fully detailed, those where it is not necessary to add a "sporting" percentage on the "super" or "run" items to cover; in the former case items of "run" and "number," and in the latter of "number."

To deal first with those errors arising from what may properly be termed "pitfalls." One we came across lately was in the bricklayer's bill. In the heading to the bill the bricks for facing were described as something different from those for the body of the walls. In the bill proper there was an item of "extra cost (if any) for fair face and pointing." No suggestion that a more expensive brick was required. The contractor took the item as described, overlooking the fact that a more costly brick was described for facings, and priced it at "fair face" price only. It may be argued that he was careless; possibly he was, but we think such a "pitfall" should not have been left. However, if he was careless, he paid for his lesson at a very heavy rate. Another instance, in the joiner's bill this time. Amongst the flooring, starting with boarded floors at "per square," wood-block flooring followed under the same heading, but the p.c. put in at "per yard." Another "pitfall"; the result was that the unfortunate contractor had to do the wood-block flooring at less than one-eleventh of the cost. Another instance that came to our notice was an item of damp-proof course. That on the walls—*i.e.*, the horizontal—was put in feet, while the vertical asphalt was put in yards, following immediately after. The contractor, in the hurry of pricing, failed to notice the difference in measurement, and priced the latter at per foot also, the result being that it appeared in the bill at 7d. per *yard*. The contractor, however, was saved this loss by a very *sharp* (?) employer, who omitted the basement work, but, as he suggested that, somehow or other, reductions were always "faked" (to use his own expression), he insisted upon the reduction being left till the final settlement of the accounts. When he found out the position of affairs at the settling-up, his remarks were of such a nature that they could not with propriety be reproduced in a respectable journal. However, he was compelled to accept the situation, but could not be induced to see that he had not been swindled by a rascally builder. Amongst other slips that have come under our notice are *yards* of glazed facing priced at per *foot*. Most contractors could doubtless supply many other examples of what may be considered "pitfalls," but we think those we have given will be sufficient for our purpose. The point is, how far can a contractor be blamed for falling into these traps; because in most instances that is their proper designation. It therefore behoves the estimator to look carefully at the various items before pricing so that these errors should be avoided. Of course those following him in making up the bills should be sufficiently conversant with pricing to be able to "spot" slips of the nature mentioned at once; but we are afraid that, whether this is so or not, these do occur even in well-regulated offices, and even where the time given for tendering is ample.

The question to be considered is, if these errors are discovered before the contract is signed, to what extent should a contractor be allowed to amend his price? If the errors are of a trivial nature, probably the contractor says nothing about them; on the other hand, if they are large, the employer, through his architect, is placed in an invidious position. He feels that in justice to the other competitors he cannot allow the addition asked for, even if he were himself willing to do so. This strictly legal position was laid down in the now somewhat ancient case of Lewis *v.* Brass, when it was decided that a client could hold a contractor to his tender, it being generally conceded that it only requires the acceptance by the client or his agent to complete the agreement. In this case it will be remembered, the defendants had to pay the difference between their tender and that eventually accepted, after their withdrawal on account of an error, and, as far as we know, this decision has never been reversed. But, as evidence that the legal position is not often strictly enforced, we do not for the moment remember another case on the subject, although the question of the withdrawal of a tender must often occur. Some contractors, for a time after this decision, altered the wording of the form of tender to "We estimate the cost of" in lieu of "We are willing to execute," thereby often putting themselves out of court by not tendering according to the form sent out. Although the legal position has been thus defined, as we have pointed out, this is very seldom, if ever, enforced. In this connexion, as with many others of a similar character, a broader view is desirable; therefore no hard-and-fast rule can be adopted, but each case dealt with on its merits. Broadly speaking, a tender once sent in should be unalterable, although in exceptional cases it may be allowed. We have known cases when an error has been discovered by the contractor, he has immediately asked to be allowed to withdraw his tender, when a close investigation has proved that he has really made a mistake, and has been allowed to revise his price. This is a somewhat dangerous precedent, although in the cases mentioned possibly quite justifiable. One, however, always looks with suspicion upon a claim to amend a tender which is considerably below that above it, and the error claimed is just sufficient to bring it slightly below. In such a case it is advisable to give the contractor the option of proceeding with the work at the price given, or to withdraw his tender altogether. It will be generally conceded that to force a contractor to take up work unwillingly, will not conduce to good work, and will inevitably lead to strained relations. The very nature of building work makes it absolutely essential that there should be nothing in the nature of coercion at the commencement of the contract, and giving the contractor the option mentioned will often do a good deal to obviate future difficulties. Of course the client has to be considered and consulted throughout the various negotitations, but we think that most architects will be able to advise their clients as to the proper course; and, more than that, persuade them to adopt it, because, after all, the client is the one who will suffer most. Law in building work is to be avoided, as in every other walk in life, and neither the architect nor the contractor who is frequently engaged in lawsuits, is one to be trusted. When one considers the amounts involved in building works, and the possibilities of disagreements, it is greatly to the credit of both the professional and commercial sides of the bargain that law cases are so few. It is that mutual understanding of the many pitfalls that begets a mutual forbearance.

We have dealt with what may be termed the "accidents" in the preliminaries of contracting; things which *should* not occur, but which frequently do, and we trust these few remarks upon a subject which interests all concerned in building, *may* tend to minimise the number of these "accidents" in the first place, but, if they do occur, may lead to their being got over without friction and without recourse to the assistance of the law, when, as a general result, neither party is satisfied and a great deal of unnecessary trouble and expense is incurred with no equivalent benefit.

THE INSTITUTE OF BUILDERS:

ANNUAL DINNER.

THE annual dinner of the Institute of Builders was held on Tuesday in De Keyser's Royal Hotel, Victoria-embankment, E.C., Mr. Frederick Higgs, President, in the chair. There were also present:—Messrs.

Leonard Horner, President London Master Builders' Association
Sir Aston Webb, C.B., R.A.
W. E. Riley, Superintending Architect L.C.C.
S. Smethurst, J.P., President National Federation.
S. Chatfeild Clarke, F.S.I., President Quantity Surveyors' Association
W. Hammond
H. T. A. Chidgey
W. Godson
J. J. Joass
C. H. Mabey
Ar. J. Davis
Clifford C. Trollope
Max O. Ayrton
Howard W. Trollope
Thomas Holloway, J.P.
J. E. Drower
Major H. P. Tavener Dickins, V.D., Master Tylers' and Bricklayers' Company
Howell J. Williams, J.P., L.C.C.
J. Carmichael
Frank May, J.P.
W. F. Wallis, J.P.
C. O. Spencer Smith
W. Aumonier
G. Corderoy, F.S.I.
J. Randall, Treasurer I.O.B.
Wm. Shepherd
W. H. Romaine Walker
Fred. L. Dove, L.C.C.
H. V. Lanchester
F. G. Rice
F. J. Eedle
A. J. Orr
Frank M. May
F. W. Foster
F. G. Minter
J. O. Foster
J. Anderson
J. W. White
H. W. Wills
R. B. Chessum
Hy. Northcroft
J. Bisgood
C. Heathcote
J. E. Arpin
Geo. O. Estcourt
Morris B. Evans
H. Tanner, jun.
J. C. Nicholson
Wr. Needham

Alderman Roll
J. W. Chessum
Edward J. Strange
A. G. White, Secretary Nat. Federation
J. Wright
A. W. Sinclair
Councillor S. Easten
A. Dixon
Hy. Perkin
H. P. Shepherd
J. B. Johnson
E. I. Neale
J. Storrs
Ar. Ross
K. Nicholson
T. B. Whinney
Wm. Nicholson
Councillor W. M. Blackburn
E. W. Wooster
D. Redman
Ben Carter
Ralph J. Holliday
L. Sylvester Sullivan
H. H. Holliday
James S. Holliday
Col. A. J. Bolton
Geo. Parker
Hy. Wall
J. Hudson
Gilbert Jenkins
F. E. Williams
A. J. Gate
W. J. Renshaw
Frank Wall
H. W. Stride
W. Matthews Hill
C. H. Gage
Edmond J. Hill
H. S. Greenwood
W. Thomas
F. Lanchester
A. B. Falkner
J. C. S. Mummery
Paul Rhodes
A. E. Hughes
G. P. Nash
Er. J. Abbott
Thomas Hall
W. T. Walker
Wr. Lawrence, jun.
T. Costigan, Secretary.

The loyal toasts having been honoured,

Mr. Leonard Horner, P.L.M.B.A.,

proposed the toast of "The Professions"—the professions relating to the building industry. A leading profession was that of architecture, which occupied such a prominent position among the arts. The history of our race could be gleaned from buildings, and if we looked at the Norman castles we saw that what they were made for is defence more than for habitation, and we knew the kind of people they were who lived at the time. And he hoped that the people who read our history would be able to judge the sort of people we are. There was one thing he hoped they would be able to discover, and that was that we had left buildings suitable and fit for the poorer classes who had to live in cities and towns, for the character and fitness of our race depended upon what buildings we now put up for them. Architects were fully alive to this, and they had already provided a better class of house building than we had ever had before, and they had taken a great interest in houses of the lower class, and they had taken a prominent part in the Housing and Town Planning Act, which was a great thing for the country. Then there were the many fine public buildings which had been erected in many cities of the country, which reflected great credit on their architects. Another profession was that of surveying, and those who were interested in building knew how fairly and honourably all dealings in land and valuations of property were made by surveyors. Mr. Horner also referred to the quantity surveyors, and concluded by coupling the names of Sir Aston Webb, C.B., R.A., and Mr. G. Corderoy with the toast.

Sir Aston Webb

said the interests of architects and builders were identical; they were engaged in the same subjects, and their objects were the same, *i.e.*, the putting up of buildings which would last and which would be beautiful and which would meet the purposes for which they were erected. He was afraid he could not congratulate them on very good times. They were times of keen competition and low and cutting prices, and that was not good for the builder, the architect, or even the client. There was a tendency in the present day to think that price was the only thing, but really that was a small matter in building in comparison with the interest and advantage to people who build that they should have a thoroughly well-constructed building, which would last, and which would not need perpetual repairs afterwards. There was one matter on which they might congratulate themselves, and that was the very much keener interest which the public were taking in building matters; that would have a far-reaching effect on building, and also on architecture. If people wanted good architecture and building they would get them. There was good reason to be proud of the work done by the builders of England. They were in a real sense empire builders, and some of them built in various parts of the world. There was the late Sir John Aird, who had done large works in many parts of the world, and Lord Cowdray, who had taught even the Americans to tunnel under their river. The industry in which architects and builders were interested was one of which they might be proud. It added to the beauty and dignity of our towns and the dignity of the country generally.

Mr. Corderoy,

in the course of his response for the surveyors, said they had acquired a great faculty for looking at all sides of a question, and he thought there was no one better qualified to express an impartial opinion than a surveyor. There was no profession which more surely tested character and in which character more surely tells.

Mr. W. H. Romaine Walker

then proposed "The Institute of Builders and its President." The more he had to do with builders, he said, the more his opinion had risen of the integrity and soundness of the British builder. It had fallen to his lot to employ a great many contractors in various parts of the world, in Europe and America, and, while he found much to admire in them and many things which British builders might emulate with advantage, he had no hesitation in saying, taking him for all in all, that the British builder wanted a lot of beating. Life was something of a lottery, and he had been fortunate enough to draw prizes, for never in the course of his practice had he had a dispute with a contractor. That was saying something. Again, it had never been his lot to meet that gentleman who, either out of charity or for fear of an action for libel, has always been referred to only by his Christian name Jerry. But he would not say he had not come across his trail; from as long ago as the time of the Normans he had found him. Even quite lately he had come upon him in the time of Adam—he did not refer to our first parent, though he believed that ever since then we had been trying to repair the damage he did. One matter the Institute was taking up seriously was apprenticeship. It seemed to him that we should never arrive at really first-class work until that had become an absolute fact. It was no good giving a man his tools unless he had learnt how to use them. We all had to work hard, even though sometimes we did not show it. The business of the builder was not a bed of roses, except for its thorns. One of these thorns which was creating a little soreness was that of sub-contractors and specialists. That was a very difficult subject. Being one of the greatest sinners in that respect, he might as well make open confession. When one went abroad and saw some great work, such as the Palace of Versailles, one was told that So-and-so designed the building and So-and-so built it, and there was an end of that. But then our cicerone, pointing to a ceiling, will tell us it is by such a painter, the door and window furniture by someone else; and it was the same elsewhere. He doubted whether it was possible for one contractor to be able to produce a great work alone. What we need more than the expulsion of subcontractors and specialists was that there should be a greater brotherhood between us all. If the architect and the builder and the specialist and the subcontractors were chosen as a man chooses his friends—men who could see eye to eye with him and express his aim—there would not be so much patchwork; a building would be one great whole. If the Institute of builders would only try to find some means of bringing all these men into one—he did not mind himself under what head, so long as they were under one head. He thought the builder should have some pecuniary benefit if he was to take responsibility. It was quite ridiculous to expect that he should be asked to be the guardian of a building until it was finished and yet have no possible power or remuneration over certainly one-half of the work. He did not know whether the Institute had ever applied for a Royal Charter, but he could not help thinking that as architects had a Royal Institute of British Architects, so the greatest employers of labour and some of the greatest men of the time should be able to add that word "Royal" to their title. And would it not be fitting in this Coronation year? The Institute had been in existence twenty-five years, and it would be a graceful thing to approach His Majesty and see if that would be possible. As to the President, they knew him as a good builder and a good man. For the first, he (the speaker) could vouch; for the latter, all that was necessary to do was to ask any of the poor of South London. In conclusion, he hoped the Institute would go on from usefulness to usefulness.

The President,

in reply, said he had been asked in what way the Institute differed from the London Association of Master Builders, and he proposed to give them a short historical account. For four or five centuries from the XIIth century the promotion and regulation of the building craft in London was exercised by those trade guilds established for the purpose. During the progress of the XVIIIth century this control gradually fell into disuse, until by the beginning of the Victorian era it was realised that the Government of the country should undertake the formulation of general rules which every person erecting a building should be compelled to observe. Hence the various London Building Acts and the extensions which from time to time have been added thereto. But the functions of the old guilds were not only regulative, but were also social and fraternal in their operation, and it happened that by 1834 the guilds and their property were gradually slipping out of the hands of the craftsmen engaged upon the trades, in whose interests they were originally established. As the Government were therefore taking up the control side of the craft many of the London builders desired some organisation to deal with the social, fraternal, and defensive side, with the result that the Society of Builders was formed. Who the worthy fathers were who thus laid the foundations of our present-day building organisations he had not been able to ascertain. The earliest minute-book he had yet found was dated 1859 onwards, and the names therein appearing were very interesting, including those of Trollope, Myers, Plucknett, Colls, and Higgs. They dealt with trade matters generally, such as were now tackled by the London Master Builders' Association, one item looming large being negotiations over the nine-hours' movement on the part of the operatives, who were then beginning to organise themselves into trade unions. As it appeared desirable to set up a special body to deal with these matters and be a trade union of employers, it was decided to start in the early sixties the Central Association of Master Builders of London, which was the immediate parent of the L.M.B.A. Thus the old Society was left with its quieter and happier functions to perform, and continued to flourish until it ceased to exist in 1884, immediately resurrecting to a new life under the title of the Institute of Builders, duly incorporated, whose aims were:—

"To confer with legislative and other bodies upon matters affecting the interests of the building trade, including the promotion or otherwise of Bills in Parliament.

To promote the better education in technical and general knowledge of persons engaged in the trade by classes, lectures, and examinations.

To promote excellence in the construction of buildings and just and honourable practice in the conduct of business and the suppression of the reverse.

To promote the adoption and use of equitable forms of contract, and to encourage settlement of disputes by arbitration.

To administer the charitable and benevolent fund of the Society.

To provide facilities for social intercourse between members, and to afford them the privileges of a club."

Among the signatories to these articles of association they had, happily, many surviving to-day, and some with them that night, but the majority had passed, and he should like to mention in this category their late loss in the person of Mr. John Howard Colls. The founders left a comparatively small sum of money on trust, which was invested in Government stock, and the interest of which was distributed among the chief benevolent societies connected with the trade. The income otherwise from subscriptions, which was at quite a small rate, paid current expenses and enabled them to give a few prizes for excellence in craftsmanship in woodworking, bricklaying, and masonry. They had also this year inaugurated a series of illustrated lectures upon subjects connected with the trade interesting to all, but more particularly for the benefit of the younger members of the trade, invitation to which had been practically public. They had an excellent library on building subjects,

and their premises were open at all times to the use of members for meetings, conferences, and the like. They had representatives of their body on the examining staff of the South Kensington Institution of Technology, appointed at the express instance of Sir P. Magnus, the Director, while the Carpenters' Company had for years been in the habit of calling in the assistance of sundry of the members at their annual examinations in carpentry and sanitary building science. The subject of apprenticeships in connexion with technical education generally and the building trade in particular had recently been the subject of an informal communication from the London County Council Technical Education Committee, and after much thought and care the Institute had ventured to embody their ideas upon the matter in a scheme which they were about to submit for the consideration of the authority named. The subject of the form of contract was a hardy annual until this work was brought to a successful issue mainly by the efforts of the then President, Mr. W. King. An idea was gaining ground that this contract in one or two particulars should be amended. Some of the provincial builders had complained of the difficulty they experience in getting prompt settlements of their accounts, and desired that clause 30 should be amended. The National Federation, as the highest organisation of the building trade in the country, had been requested to move in the matter with the R.I.B.A. They naturally appealed to this Institute, as the chief agent on the builders' side in negotiating the contract, to assist them, but the Institute felt bound to reply that, while they should not feel justified in making objection to any arrangement that they might succeed in effecting with the R.I.B.A. in respect to an alternative to clause 30, they could not render them any aid, as the present clause was, in the view of the Institute, effective for the purpose. Everybody, however, engaged in the building industry agreed that clauses 20, 27, and 28, with reference to the employment of specialists and sub-contractors, required alteration. The Institute had been considering the points in committee, and in due course they should approach the R.I.B.A. with a view to amendment of the contract in this respect. A note in the minute-book of 1884 mentioned the liability of builders for accidents happening through the negligence of sub-contractors approved by the building men. Being an incorporated body, the Institute had a legal status in the matter of petitions to the King and Parliament, and in other ways were in a position of greater privilege than if they were simply a trade organisation and nothing more. His year of office now shortly to close had been uneventful, but his friends had always rallied round in support, and to their kindness and forbearance he owed much, and also to the energy and enthusiasm of their excellent Secretary, Mr. Costigan. Those of his builder friends not yet members of the Institute of Builders who had dined there that night he would ask to join the Institute now that they knew a little more of its aims and objects.

Mr. H. T. A. Chidgey, Q.S.A.,

then proposed "The National Federation of Building Trades Employers of Great Britain and Ireland." He said the Federation had an honourable history. In the building trade the necessity and importance of unity had long been recognised, and one of the objects of the Federation was to secure this unity. It represented the best interests of the trade throughout the country, and, speaking as a quantity surveyor, he considered that federation of this kind was of the highest importance, for there were many questions which affected the building trade about which they should have unison. He wished there was more of this federation—not only among the trades, but also among the professions. In the profession he belonged to they had been trying, without much success so far, to secure something of the kind. That was a difficulty the Federation had to face, he believed. Why was it that men would not enter and strengthen the ranks of bodies existing to support their interests? He hoped that as time went on those outside such bodies would work side by side in questions which concerned all.

Mr. Sam. Smethurst, J.P.,

President of the National Federation, said he had visited most of the provincial towns in connexion with functions like that annual dinner, and he was pleased to be able to testify that there was a deep-seated and growing interest in the interests of the Federation. Men who a few years ago were apathetic were now becoming interested, and the future, he believed, promised well for the Federation. The Federation was gathering together and organising for the higher ends of the craft; they belonged to the members of the trade, and as the Federation was perfected and gathered within their ranks practically the whole of the members of the trade, there was scarcely any limit to what might be achieved. He thought it was testimony to the efficiency of the organisation that all the differences between the employer and the employed had practically been composed. It was scarcely possible to have anything in the nature of a strike or lock-out; friction had been done away with. Builders would gladly welcome better organisation on the part of architects and surveyors, and he hoped the R.I.B.A. would be successful in bringing into its ranks the great majority of the profession, for it would be for the improvement of the craft they all belonged to. We could not get perfection, but there was much that wanted doing which could be done if earnest men would make the attempt. It ought to be the main object of the Federation to raise the standard of work and the honourable practice of the calling to which they belonged. As to town planning, the effort would be worthy of the best men of the architectural profession to try and improve the dwellings of the poorer classes for the sake of health and æsthetic effect. In South Yorkshire it was expected that there would be a new population of nearly a quarter of a million in towns which would spring up, and it was hoped that they would be built on sane and healthy lines—houses which would survive and be worthy of Englishmen. He hoped they would co-operate to get rid of the jerry builder and the man who erected atrocious cottages just in order that he might make money out of them.

Mr. J. S. Holliday,

proposed the toast of "Our Guests" in suitable terms, coupling with it the name of

Mr. W. E. Riley,

Superintending Architect of the London County Council. Mr. Riley in the course of his remarks said he did not think that building had ever before reached such a high standard as at the present time. Good building had more to do with successful architecture than a great many people realised. He had seen many an indifferent design very much improved by good building. He had had the privilege of building houses to house something like 48,000 poor, and he felt that was one of the greatest honours that could have fallen to him. In the course of an extended and strenuous life he had had but two arbitrations, and he had never made an enemy of a builder; both cases were settled in a friendly way. He had found that if he treated a builder fairly he would respond generously, and he commended that to his colleagues. We should show a little sympathy for those who were working with us.

BILLS (LONDON) IN PARLIAMENT.

Standing orders having been complied with, the following Bills have been sent for first reading when the House reassembles:—For the improvement and extension of Waterloo terminus, by the London and South-Western Railway Company; extension of their line from Wood-lane terminus to the Great Western Railway Company's Ealing and Shepherd's Bush line, by the Central London Railway Company; a bridge across the river Lea, and widening of streets in Tottenham and Walthamstow, by the Metropolitan Electric Tramways Company; and a bridge to begin from the junction of Southwark-street and Great Guildford-street and to terminate on the south side of Cannon-street at a point 15 yds., or thereabouts, westwards from Old Change, with the rebuilding of Southwark Bridge, a widening of the east side of St. Paul's Churchyard, a subway in Knightrider-street, and a temporary footbridge across the river, by the Corporation of London.

THE LONDON MASTER BUILDERS' ASSOCIATION:
MONTHLY REPORT.

THE usual monthly meeting of the Council of this Association was held at Koh-i-Noor House, Kingsway, W.C., on Thursday, the 19th instant, under the chairmanship of Mr. Leonard Horner (President).

Deep regret was expressed at the death of the late Mr. John Howard Colls, Past-President of the Association and a prominent supporter of all the building trade organisations. Sincere sympathy was felt for the members of his family.

Mr. William Shepherd was elected a trustee for the reserve fund in place of Mr. Colls.

The question of supplying free copies of the *Architects and Builders' Journal* to the ordinary members was discussed and instructions given, of which the members will be notified later.

It was decided to hold the annual dinner at the Whitehall Rooms, Hôtel Métropole, on Thursday, February 23 next, and the annual general meeting at Koh-i-Noor House on Monday, February 27.

The draft of the annual report was submitted, amended, and approved.

Other matters of interest were discussed.

MASTER BUILDERS' ASSOCIATIONS, etc.

Bolton and District Building Trades.

The annual meeting of the Bolton, Farnworth, Horwich, and District Building Trades Employers' Association was held on the 16th inst. at the offices, 31, Fold-street, Mr. Ben Talbot, retiring President, occupying the chair.

The Secretary read the annual report, which was approved and ordered to be printed and circulated together with the financial statement, which showed the Association to be in a flourishing condition.

Mr. Ben. Talbot was re-elected President, with Mr. J. W. Witter as senior Vice-President, and Mr. Edward W. Page, as junior Vice. Mr. Frank Woods was re-elected Treasurer.

A representative Committee of each branch of the trade was elected. It was arranged to hold the annual social meeting early in February, and the arrangements were left with the President and Secretary.

The report for 1910 stated that the year has presented few results on which one can look back upon with much satisfaction; the slackness of this particular branch of trade, which has been the marked characteristic of several previous years, having shown little signs of amelioration. Despite the rather more favourable trade union returns, one has only to start new contracts to find that there are ten applicants for every vacancy. The exceptional depreciation in real estate is a prominent factor against the trade. The experience of those who have dealings in the property market is that it is hardly possible nowadays to obtain the cost of the building offered for sale, even if the land on which it stands is given away. The result of this condition of things is that the public will not build for themselves. In consequence of the past depression in the trade, keen competition has arisen for orders for building materials and fittings, with the result that the manufacturers were faced with disastrous financial results by the low prices which were obtained. To protect themselves, however, several groups of traders have met to endeavour to fix a minimum price for their specialities. But when, as the result of their meeting, the prices are artificially forced up to a large degree without any regard to the needs of the trade, a serious condition of affairs is set up. What, then, is the remedy for this unfortunate condition of the building trade? It is a subject that should engage the serious consideration of our legislators, since in the solution of the problem is to be found the answer to many others. Influenced only to a minor degree by foreign competition, it is a trade that employs a very considerable proportion of the country's workmen. The improvement, when it comes, must be based on some permanent reason and not merely by passing events, and it may be expected when the confidence of the property owner is restored, and the internal trade of the country shows a marked and consistent advancement.

The Association, after consideration, decided that the Secretary should write all known makers of terra-cotta and arrange for a conference. The replies received were favourable, but anticipating that the matter was of larger importance than to Bolton alone, it was referred to the Lancashire Federation, who carried the matter forward, and a meeting was held in Manchester. Mr. Talbot, as Chairman of the Bricklayers' Trade Committee of the Federation, referred to the difficulties, and assurance was given that, in so far as they could, the manufacturers would assist the trade to secure their just rights.

The Bolton Association has been honoured by the appointment as President of the Lancashire, Cheshire, and North Wales Federation of Mr. Frank Woods, to whom the Committee extended their congratulations.

THE BUILDERS' FOREMEN'S ASSOCIATION:

ANNUAL DINNER.

THE seventeenth annual dinner of this Association was held on Saturday last in the King's Hall, Holborn Restaurant, W.C., Mr. G. Parker (Messrs. Parker & Son, Peckham) presiding, supported by Messrs. Leonard Horner, G. H. Kinton, Percy Meredith, G. H. Parker, E. R. Bubbs, B. Carter, T. Costigan, A. W. Wrightson, F. G. Rice, Walter Lawrence, Walter R. Batstone, H. J. Youngs (Messrs. Higgs & Hill, Ltd.), W. Fraser (Messrs. Burn Bros.), W. J. Bowering (Farringdon Works), and others.

The loyal toasts having been honoured,

The Chairman proposed the toast of the evening, "The Builders' Foremen's Association," coupled with the name of Mr. T. Reynolds, President.

The Chairman said the present builder's foreman was a much better educated man than the foreman of forty years ago, and he attended to his various duties in a way that made most things on a job go smoothly. The Association had created a desire on the part of foremen to qualify more thoroughly for their duties. The members of the Association met for discussion, when papers were read and much valuable information was obtained which was of great use to them in their work. He did not notice from the Report that any architect had read a paper before the Association, and he felt that there were architects who would assist them by reading an occasional paper on some of the new methods of construction and new materials being introduced into buildings. In that way the knowledge of foremen would be increased and broadened, and they would be able to look at things from the architect's point of view, which was not always an easy matter. The Association was helping to bring foremen up to the standard which was required in this age of competition, when it was so difficult to make a profit on many jobs. It also helped those who fell by the way. And there was a pension fund, so that when a member attained the age of sixty years he was entitled to a pension of five to eight shillings a week, according to the time he had belonged to the Association. The Association had not yet attained its majority, and he prophesied that when it had it would be in a much stronger and more influential position than it was to-day. It had had, he was pleased to say, much help from builders and builders' merchants, and, in his opinion, it was deserving of the most hearty and generous support.

Mr. Reynolds, in response, said that in the year 1903, when they started the pension fund, the total capital was under 300*l*. In the following eight years the funds gradually increased, until to-day they had a capital of 1,642*l*.—a proof of the generous support that had been extended to the fund. But another factor had to be taken into consideration which had helped considerably to bring about this result, and that was the *Journal* or Quarterly Report, which was started in the same year with the object of assisting the fund. By its means the Association had been introduced into quarters where otherwise they would not have been known, and much good support had been the result. He should like to see its circulation extended much further, and this could only be done by making it more useful, and he asked for support from architects and surveyors. Would they forward to the editor, Mr. Thomson, information from time to time respecting works in contemplation, works to be tendered for, and the results of tenders. A list such as this would be a great help not only to those members who were seeking employment, and would know in what direction to expect it, but would also create a demand for a larger circulation. Another matter concerning the welfare of the Association had been causing some anxiety to the Management Committee—the very few applications from builders' foremen to join the Association. He asked builders' foremen whose age did not exceed forty-four years to join and help to carry on the work of the Association.

Mr. G. H. Renton (Messrs. G. H. Renton & Co.) then proposed the toast of "The Building Trades." In the course of his remarks he said he represented the timber trades—trades which, owing to the advent of steel and fireproof construction, they were learning to do without. In all his experience we had not before passed through such a period of depression as we were passing through now. We had times of depression before, but they had been comparatively short, and they had been followed by times of profitable business; but who would prophesy when those times would come again?

Mr. Leonard Horner, in reply, said it was the builders' fault that work was taken at such low prices; but he thought help might come from the outside if architects, instead of letting work be done at these low prices, would see that the price was sufficient to allow a fair profit. Another thing that builders suffered from was sub-contracting, and there, again, the builder had himself to thank. He should make himself acquainted with new methods of construction, etc., so that when the architect gave him the specification he would be able to show that he could do as well as the specialist. Builders looked to the foremen for help, and it was a great pleasure to get that help. A good foreman got good men, and never had the relationship between masters and men been as good as at the present time. As to apprenticeship, the Association he represented thought the old system, altered to suit the times, should be reintroduced. Technical schools did good work, but boys did not learn all they should. It could not be expected that men could save up money for big premiums; and, if the system were reintroduced, it was hoped that they would make the premium nominal.

Mr. A. J. Philcox then proposed the toast of "The Architects and Surveyors," expressing his admiration for the great works of architecture of past and present times.

Mr. W. Batstone, in reply, referred to the admirable work done by builders' foremen. The Association deserved support from all architects and surveyors.

Mr. G. W. Holt, Vice-President, proposed the toast of "The Visitors," and Mr. T. Costigan, Secretary of the London Master Builders' Association, suitably replied.

The concluding toast was "The Chairman," which was proposed by Mr. Ben Carter (Messrs. Stephens & Carter) and acknowledged by the Chairman.

GENERAL BUILDING NEWS.

INFANTS' SCHOOL, ALDERSBROOK, ESSEX.

The new infants' school at Aldersbrook has been opened. The total accommodation now provided is:—Boys 376, girls 376, infants 386; cookery centre for eighteen girls, manual training centre for twenty-four boys, caretaker's cottage, playsheds, etc. The building contract for the new school was entrusted to Messrs. F. & G. Foster, of Norwood, the amount of the contract being 3,973*l*. The building comprised two classrooms to accommodate forty-eight children each, one for fifty and four for sixty. The central hall is 48 ft. by 27 ft., from which the classrooms open. There are teachers' rooms at each end of the hall. The whole building is heated with low-pressure hot water. The architect is Mr. C. H. Bressey.

COUNCIL SCHOOL, WINTERBOURNE.

A new elementary school, constructed by the Gloucestershire County Council, has been built on Winterbourne Down. The buildings comprise a schoolroom to accommodate eighty children, infants' schoolroom for seventy, and two classrooms, which will each accommodate fifty. One of these classrooms has been fitted up as a cookery classroom. A large workshop, covered playshed, storerooms, and heating chamber are situated in the basement, and on the first floor are situated two teachers' rooms. The lower portions of the opening windows are fitted with glazed hoppers, and every room is cross-ventilated. The buildings are warmed by a low-pressure hot-water installation. The buildings are constructed of local pennant stone, with Bath stone dressings and tiled roofs. The schoolrooms, corridors, and cloakrooms have dados of green glazed bricks. The buildings were designed by Mr. R. S. Phillips, architect, of Gloucester, and have been erected under his supervision by Messrs. E. Walters & Son, Bristol. The total cost has been about 3,996*l*.

SCHOOL, TEIGNMOUTH.

Lord Clifford of Chudleigh, Chairman of the Education Committee of Devon County Council, opened the new West Lawn Boys' Council School at Teignmouth on the 21st inst. The school has been erected on a portion of the West Lawn Estate, the site having been purchased for 2,400*l*., and the cost of the building has been 4,100*l*. Designed by Mr. P. Morris, of Exeter, Architect to the Devon Education Committee, the school has been erected by Mr. F. J. Badcock, Ashburton. The building is of red brick, the roof and gables being covered with Delabole slate. It has a frontage of 160 ft. Accommodation is provided for 420 scholars in six classrooms for fifty each and two for sixty each. There are also a large assembly hall, a manual training room, a teachers' room, a head master's room, and a cloakroom. The whole of the premises are heated by hot-water radiators. At the rear of the school is an asphalted playground, with a shelter at the eastern end.

BURTON BUILDING TRADE DEPRESSION.

For several years past the Burton building trade has been in a very depressed state, and the pinch of poverty is being felt more particularly during this part of the year. As there are between 500 and 600 empty houses, there is practically no demand for new residential properties, and comparatively very few commercial building undertakings are in hand, although there is ground for hoping that business will improve shortly.

TRADE NEWS.

Messrs. Patman & Fotheringham, Ltd., builders and contractors, 100 and 102, Theobald's-road, W.C., have obtained the following contracts:—New warehouse premises in Kingsland-road, N.E., for Messrs. John Carter & Sons, Ltd., and additions and reconstruction of Nos. 42-46, Fore-street, E.C., for Sir Richard Stapley and Mr. H. Smith.

The Blackheath School of Art extension is being warmed and ventilated by means of Messrs. D. O. Boyd's "Hygiastic" ventilating school grates, supplied by Messrs. O'Brien, Thomas, & Co., of Upper Thames-street, London, E.C., and Excelsior Works, Rollins-street, S.E.

Messrs. Doulton & Co., Ltd., Lambeth, London, S.E., have been appointed Potters to his Majesty King George V.

The "Boyle" system of ventilation (natural), embracing the latest patent "air-pump" ventilators and air inlets, has been applied to St. Luke's Parish Church, Prestonville, Brighton.

Messrs. Thomas Crapper & Co., Ltd., Marlboro Works, 120, King's-road, Chelsea, S.W., have been honoured by the King with a Warrant appointing them Sanitary Engineers to his Majesty.

The Electric Theatre, Folkestone, is being supplied with Shorland's patent exhaust roof ventilators by Messrs. E. H. Shorland and Brothers, Ltd., of Failsworth, Manchester.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

THE London County Council, at its meeting on Tuesday, dealt with the following applications under the London Building Acts (the names of the applicants are given between parentheses):—

Lines of Frontage and Projections.

Battersea.—The erection of a shop front on the forecourt of No. 68A, Battersea-rise, Battersea (Messrs. H. Bignold & Idle for Mr. E. Feldon).—Refused.

Brixton.—Erection of projecting steps in front of a proposed mission building on the eastern side of Bedford-road, Brixton, immediately southward of No. 13 (Messrs. Greenaway & Newberry for the Rev. W. Hook-Longsdon).—Consent.

Chelsea.—Erection of a projecting sign in front of No. 45, King's-road, Chelsea (Stanley Jones & Co., Ltd.).—Consent.

Clapham.—Erection of a one-story building on the south-western side of Voltaire-road, Clapham (Mr. J. W. Stevens for Williamson & Cole, Ltd.).—Consent.

Hackney, North.—The erection of a building to abut upon a passageway at the rear of Nos. 1 to 13, The Broadway, Stamford-hill (Edmondson, Ltd.).—Consent.

Hackney, Central.—The erection of buildings on the northern side of Church-road, De Beauvoir Town, Hackney, eastward of No. 2A (Mr. W. O. Brown).—Refused.

Hampstead.—Erection of projecting one-story shops at No. 339, Finchley-road, Hamp-

stead (Mr. C. H. Saunders for Mr. J. Van den Bergh).—Consent.

Holborn.—Erection of a porch and balcony in front of the proposed Examination Hall building upon the site of Nos. 8, 9, 10, and 11, Queen-square, Holborn (Mr. A. N. Prentice for the Royal College of Physicians and Surgeons).—Consent.

Marylebone, East.—Retention of a bay window and two balconies at No. 32, Weymouth-street, St. Marylebone (Mr. F. M. Elgood for Mr. L. W. Thomas).—Consent.

Marylebone, West.—Erection of wood and glass enclosures to the existing porch in front of No. 21, Manchester-square, St. Marylebone (Mr. R. G. Hammond for Lord Hylton).—Consent.

Paddington, South.—Erection of wind screens at the sides of the projecting porch in front of No. 66, Queensborough-terrace, Paddington (Maple & Co., Ltd., for Mrs. Holt).—Consent.

Paddington, South.†—The erection of an iron and glass shelter in front of Nos. 26 and 27, Leinster-gardens, Paddington (Mr. F. W. Stevenson).—Refused.

St. George, Hanover-square.—Erection of a porch and balcony in front of No. 13, Hanover-square, St. George, Hanover-square (Messrs. John Belcher, R.A., and J. J. Joass).—Consent.

Strand.—The erection, at Nos. 2 and 3, Duke-street, St. James, of three balconies next to Duke-street and one balcony next to King-street (Messrs. Harris & Moodie).—Consent.

Wandsworth.—That the application of Mr. J. C. Radford for an extension of the period within which the erection of a mission building upon a site on the western side of Walker's-place, Putney, was required to be commenced, be granted.—Consent.

Wandsworth.—Erection of a projecting porch in front of No. 29, Rusholme-road, Putney (Mr. A. E. Chasemore for Mr. T. W. Cooke).—Consent.

Wandsworth.—That the Council, on the application of Messrs. Holloway Brothers and in connexion with the resolution consenting to the erection of one-story shops in front of Nos. 3 to 10 inclusive and Nos. 13 to 16 inclusive, Magdalen-parade, Garratt-lane, now known as Nos. 577 to 591 inclusive, and Nos. 597 to 603 inclusive, respectively, Garratt-lane, Earlsfield, do extend until January 21, 1912, the time within which the whole of the land coloured blue on the approved plan was to have been dedicated to and left open for the use of the public.—Consent.

Woolwich.—Retention of a projecting hood over the entrance to No. 96, Eltham High-street (Mr. W. H. Burt for Messrs. Cave, Austin, & Co., Ltd.).—Consent.

Width of Way and Lines of Frontage.

Bethnal Green, North-East.—The erection of a Roman Catholic church upon a site on the southern side of Old Ford-road, Bethnal Green, abutting also upon the eastern side of Victoria Park-square (Mr. E. Goldie).—Consent.

Hampstead.—The erection of a two-story bay window at "Wildwood," North End, Hampstead (Mr. A. E. Pridmore for Mr. W. J. Wiltshire).—Consent.

St. Pancras, North.—Erection of an addition to a garage on the western side of Fitzroy-park, Highgate (Mr. W. T. Walker for Mr. E. P. Sells).—Consent.

Wandsworth.—The erection of an advertisement hoarding on the southern side of Alma-terrace and the eastern side of Heathfield-road, Wandsworth (Mr. H. S. Lee).—Refused.

Lines of Frontage and Construction.

Brixton.—That the Council, on the application of Mr. H. Cooke, do extend the licence in respect of the temporary wooden shed in front of No. 289, Coldharbour-lane, Brixton, for a period of three years from the 22nd day of October, 1910.—Consent.

Chelsea.†—The erection of an iron and glass shelter at the entrance to the Electric Theatre at the corner of King's-road and Markham-street, Chelsea (Mr. G. S. Valentin).—Refused.

Deptford.—The retention of a building used as a greenhouse and cycle shed in the garden at the side of No. 144, Breakspears-road, Brockley.—Consent.

Islington, East.—That the Council, on the application of Messrs. R. G. Paget & Son, do extend the licence in respect of the temporary showcase on the forecourt of No. 36, Newington Green-road, Islington, for a period of three years from the 17th day of December, 1910.—Consent.

Kensington, South.—That the Council, on the application of Mr. R. Martin-Holland, do extend the licence in respect of the temporary perambulator shed and perambulator hoist in the basement area of No. 20, Elvaston-place, Kensington, for a period of three years from the 26th day of November, 1910.—Consent.

Kensington, South.†—A deviation from the plans approved for the erection of an iron and glass shelter over the Brompton-road entrance to the Knightsbridge Tube Railway Station (Mr. F. E. Knapp for the Underground Electric Railways Company of London, Ltd.).—Refused.

Paddington, North.—That the Council, on the application of Messrs. Jay & Co., do extend the licence in respect of the temporary wooden building, at the rear of No. 219, Shirland-road, Paddington, and abutting upon the eastern side of Saltram-crescent, for a period of three years from the 3rd day of December, 1910.

Paddington, South.—A deviation from the plans approved for the erection of a temporary wood and iron building at the rear of No. 34, Bishop's-road, Paddington, next to Gloucester-terrace, so far as relates to the erection of an addition thereto (Messrs. Humphreys, Ltd., for Mr. J. Munford).—Consent.

St. Pancras, South.—That the Council, on the application of Mr. H. Summers, do extend the licence in respect of the temporary fruitstall in front of the Metropolitan Railway Station, Gower-street, St. Pancras, for a period of three years from the 10th day of December, 1910.—Consent.

Strand.†—Erection of an iron and glass shelter in front of the Oxford-street entrance to the Oxford-circus Tube Railway Station, Westminster (Mr. F. E. Knapp for the Underground Electric Railways Company of London, Ltd.).—Refused.

Strand.†—The erection of an iron and glass shelter at the entrance to Faulkner's Hotel, Villiers-street, Strand (Messrs. Batt & Hart for Messrs. Faulkner).—Refused.

Wandsworth.—The erection of a wood and iron shed of a temporary chararter in front of a stable building on the western side of Balham-hill, Wandsworth, northward of No. 4 (Mr. W. Bartholomew for Messrs. Wotton & Dean).—Consent.

Westminster.—That the Council, on the application of Mr. J. P. Meadon, do extend the licence in respect of the temporary wood and iron cycle shed at the rear of the London Soldiers' Home, Buckingham-gate, Westminster, for a period of three years from the 29th day of October, 1910.—Consent.

Width of Way, Lines of Frontage, and Construction.

Clapham.—That the Council, on the application of Messrs. E. Evans & Sons, do extend the licence in respect of the temporary building at the rear of No. 253, Lavender-hill, Battersea, abutting upon Attenburg-gardens, for a period of three years from the 8th day of October, 1910.—Consent.

Kensington, North.—The erection of an iron and glass shelter at No. 191, Portobello-road, Kensington (Mr. G. S. Valentin).—Consent.

Width of Way, Lines of Frontage, and Space at Rear.

Peckham.—The erection of No. 58, Downes-street, Peckham (Mr. N. Hoskins).—Consent.

Space at Rear.

Holborn.—A deviation from the plans approved for the erection of a building upon the site of Nos. 210 and 211, High Holborn (Mr. F. W. Foster).—Consent.

Strand.—The erection of a building upon the site of No. 15, Rupert-street and Nos. 3 and 4, Rupert-court, Soho, so far as relates to the erection of an addition to such building upon the site of Nos. 1 and 2, Rupert-court and upon the southernmost open space at the rear of such buildings (Mr. W. T. Reynolds for Mr. C. Pinoli).—Consent.

Westminster.—A modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of (i.) No. 12, Smith-square, abutting upon the eastern side of Smith-square and the northern side of Dean Stanley-street, Westminster; and (ii.) a house upon a site adjoining No. 12, Smith-square and abutting upon the northern side of Dean Stanley-street, with irregular open spaces about such buildings (Messrs. Horace Field & Simmons for Mr. Walter Rea, M.P., and the Right Hon. Russell Rea, M.P.).—Consent.

Space at Rear and Construction.

Kensington, South.—The erection of a conservatory of a temporary character upon the flat over the library at the rear of No. 47, Bramham-gardens, South Kensington (Mr. E. D. Hook for Lady de Gex).—Consent.

Space at Rear and Conversion.

St. Pancras, South.—The conversion of premises abutting upon Hertford-place, St. Pancras, into domestic buildings (Mr. S. G. Castleman for Maple & Co., Ltd.).—Consent.

Deviation from Certified Plans.

Chelsea.—A deviation from the plans approved for the erection of a studio at Cheltenham-terrace, Chelsea, adjoining the "Duke of Gloucester" tavern, so far as relates to a reduction in the height of the studio and the formation of an opening between the studio and the adjoining building.—Consent.

Working-class Dwellings.

Wandsworth (detached).—A deviation from the plans approved for the erection of working-class dwellings, and the formation or laying-out of new streets on a site abutting upon the south-western side of Rosendale-road, Herne-hill, so far as relates to the erection of bicycle and perambulator sheds at the rear of one of the blocks (Messrs. W. Cubitt & Co.).—Consent.

Alterations of Buildings.

Chelsea.—The erection of a lift enclosure at No. 41, Cadogan-square, Chelsea, with one of the enclosing walls of less thickness than required (Mr. R. G. Hammond for Lord James of Hereford, P.C.).—Consent.

Courts Within a Building and Alterations.

Kensington, South.—The erection of a lift enclosure in a court at No. 10, Observatory-gardens, Kensington (Mr. O. P. Milne for Mr. R. C. Adams Beck.—Consent.

Cubical Extent.

Deptford.—The erection of a building exceeding 250,000 cubic feet in extent upon a site on the eastern side of Creek-street, Deptford (Mr. A. Roberts for Messrs. J. & A. Dandridge).—Refused.

Cubical Extent and Construction.

Deptford.—The erection of a wood and iron shed of a temporary character, approached out of the western side of Tanner's-hill, Deptford, and immediately south-westward of the South Eastern and Chatham Railway, and to the omission of a layer of concrete over the site (Mr. J. Webster).—Consent.

Uniting of Buildings

City of London.—Additional openings in the division wall between Nos. 3 and 4, Wood-street-square, City (Messrs. Worden & Hancock).—Consent.

City of London.—The formation of an opening in a division wall in the basement at the premises of Messrs. Lever Brothers, George-yard, Upper Thames-street, City, of a larger size than specified (Messrs. W. Cubitt & Co.), and also provision of double roller shutters in lieu of double iron doors to such opening (Wilson Roller Shutter Company).—Consent.

City of London.—The use of double roller shutters in lieu of double iron doors to five division wall openings on the fifth floor of the premises of Messrs. Lever Brothers, George-yard, Upper Thames-street, City (Wilson Roller Shutter Company).—Consent.

City of London.—The use of doors of special construction in lieu of iron doors in division walls on the first, second, third, and fourth floors of a building upon the site of Nos. 10 and 11, Old Bailey, City, and the Old Sessions House (Fireproof Doors, Ltd.).—Consent.

City of London.—The uniting of No. 58, Farringdon-street, City, with No. 27, Farringdon-avenue, by means of openings at the first, second, third, and fourth floor levels (Messrs. James Keith & Blackman Company, Ltd.).—Consent.

Hackney, Central.—The retention of an opening between No. 510 and Nos. 508A and 508, Kingsland-road, Hackney (Mr. B. Joseph).—Consent.

Holborn.—The uniting of buildings on the western side of Little Gray's-inn-lane, Mount Pleasant (Messrs. Max Clarke & Garbutt for Messrs. Maltby & Sons).—Consent.

Hoxton.—The further uniting of Nos. 1 and 3, Underwood-street, Hoxton, by means of an opening at the basement level (Messrs. F. Chambers & Son for Mr. F. J. Chambers).—Consent.

Kensington, South.—The provision of hardwood doors in lieu of iron doors to division wall openings; and the omission of double iron doors from division wall openings, at the premises of the Continental Tyre Company, Ltd., Thurloe-place and Fulham-road, Kensington (Mr. Paul Hoffmann for the Continental Tyre Company, Ltd.).—Refused.

Poplar.—The use of armoured doors in lieu of iron doors in division wall openings between blocks of a building on the northern side of Cuba-street, Poplar; and the erection of an external iron staircase and an iron and glass roof over a loading platform.—Consent.

Cubical Extent and Uniting of Buildings.

Bow and Bromley.—A further deviation from the plans approved for the erection, at the premises of Messrs. Bryant & May, Ltd., Fairfield-road, Bow, of a building to exceed 250,000 cubic feet in extent (Messrs. Holman & Goodrham), and the use of double doors of special construction in lieu of double iron

doors to certain division wall openings.—Consent.

St. Pancras, East.—The formation of an opening in a division wall between blocks A and B of the premises of the F.I.A.T. Motor Cab Company, Pancras-road, St. Pancras, and the provision of double armoured doors in lieu of double iron doors to such opening (Messrs. Burton & de Bertodano for the F.I.A.T. Motor Cab Company).—Consent.

The recommendations marked † are contrary to the views of the metropolitan borough councils concerned.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERDEEN. — Buildings, Loch-street, for Northern Co-operative Society (2,000*l.*); Messrs. Brown & Watt, architects, 17, Union-terrace, Aberdeen. Mill, engine-house, etc., St. Clan-street, for Mr. J. Mitchell (2,000*l.*); Mr. G. Watt, architect, Aberdeen. Additions, premises of Aberdeen Comb Works Company, Hutcheson-street (5,000*l.*); Mr. J. Besset, jun., engineer, Aberdeen.

Balshagray.—Church halls and offices, etc. (5,000*l.*); Trustees, Parish Church.

Banbury.—Stores, High-street; Mr. F. Trepess, architect, Warwick; Mr. J. S. Kimberley, builder, Banbury.

Bangor (Ireland).—Hot sea-water baths (6,900*l.*); Messrs. Kaye-Perry & Ross, architects, Dublin.

Birkdale.—Destructor, Carr-lane; Surveyor, District Council.

Birkenhead.—Masonic hall; Messrs. Ware & Bailey, architects, Exchange-street East, Liverpool.

Blyth.—School (8,000*l.*); Messrs. Robson & Tweeddle, builders, Blyth.

Bournemouth.—Hebrew synagogue, Wootton-gardens (1,700*l.*); Messrs. Lawson & Reynolds, architects, Yelverton-chambers, Bournemouth; Messrs. J. & W. Hayward, builders, Bournemouth.

Chatham. — Additional accommodation at infirmary (1,400*l.*); Architect, Medway Board of Guardians, Chatham.

Darlington.—School; Mr. F. Winter, Borough Surveyor, Town Hall, Darlington.

Doncaster.—Palace theatre, Silver-street; Messrs. Ward & Hall, architects, Birmingham.

Edinburgh.—Mission Church, hall, and offices, corner of Pleasance and Brown square; Governors, Deaconess Hospital.

Elmswell (Suffolk).—Factory, St. Edmundsbury Bacon Factory, Ltd., Elmswell.

Girvan.—Proposed forty houses for the Killochan Coal Company.

Glasgow.—Garage and motor workshop, Paisley-road, for Co-operative Society (5,500*l.*); Mr. J. Davidson, Master of Works, Scots Wholesale Co-operative Society, 95, Morrison-street, Glasgow. Extension, warehouse, for Trustees of Mr. Jas. Cowan (3,000*l.*), also warehouse, Cadzow and West Bothwell streets (3,000*l*); Messrs. F. Burnett & Boston, architects, 180, Hope-street, Glasgow. Workshops, Cadogan-street; Mr. J. Allen, engineer, 10, Cadogan-street, Glasgow. Buildings, Springfield-road, for Messrs. Brown, Stewart, & Co., Ltd., Dalmarnock Paper Mills, 296, Springfield-road, Glasgow. Extension, works, Mill-street, for Messrs. J. P. M'Phun & Co., timber importers, 40, Mill-street, Bridgeton, Glasgow. Buildings, Stamford-street, for Messrs. Reeves, Ltd., 14, Appold-street, London, E.C. Shops and houses, Dalmarnock-road; Mr. J. Porter, house factor, 577, Dalmarnock-road, Glasgow.

Gloucester. — Alterations and additions, school of domestic science; Mr. H. W. Household, Secretary, Education Committee, Gloucestershire County Council, Gloucester.

Greencroft (Durham).—School (11,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Greenodd (Lancs).—Additions, premises, for the Furness Chemical Company, Ltd.

Harlington.—Enlargement of school, Clayton-road, by 300 places; Mr. B. S. Gott, Secretary, Education Committee, Middlesex County Council, Guildhall, Westminster, S.W.

Harwich. — Carnegie library; Mr. H. Ditcham, Surveyor, Harwich Town Council.

Haverthwaite (Lancs).—Eight cottages for the Levan Valley Co-operative Society.

Hednor.—Theatre, Red Lion-square; Midland Electric Treatres, Ltd.

Horden.—Hotel for the Durham and North Yorkshire Public-house Trust Company, Ltd.

Hull.—Theatre, Albert-avenue; Newington Hall Company, Ltd., Hull.

Letchworth (Herts).—Proposed school; Mr. A. R. S. Hallidie, Secretary, Education Committee, Herts County Council, Hertford.

Lower Ystradgynlais.—School; Mr. C. Best, architect, Brecon.

Lydney (Gloucestershire). — School; Mr. H. W. Household, Secretary, Education Committee, Gloucestershire County Council, Gloucester.

Monagan.—Artisans' dwellings; Surveyor, Urban District Council.

Morton (Malton).—Extensions, St. Peter's Church; the Vicar.

Newbridge.—School (12,000*l.*); Mr. T. G. James, Secretary, Education Committee, Monmouthshire County Council, Newport.

Newcastle-on-Tyne.—Twenty-three cottages and lodge at Coxlodge Asylum (7,300*l.*); Mr. G. Douglas, builder.

New Seaham.—School; Messrs. J. A. L. Robson and A. J. Dawson, Joint Secretaries, Education Committee, Durham County Council, Durham.

Northorpe (Yorks).—School; Mr. J. Stuart, County Hall, Wakefield.

Paisley.—Post-office (13,000*l.*); Mr. W. T. Oldrieve, Edinburgh.

Polesworth.—Additions, workmen's club; Messrs. A. Moreton & Son, architects, Bondgate, Nuneaton.

Pyle (Glam).—Twenty houses, High-street, for the Pyle No. 2, Building Club.

Rathdrum (Co. Wicklow).—Six houses (1,000*l.*); Mr. J. Dunne, builder, Roundwood.

Ripley.—Picture palace for the Midland Electric Theatres Syndicate.

Ripon. — Additions, Spa Baths; Messrs. Hillstead, builders, Ripon.

St. Albans.—Isolation hospital, Folly Mead; Mr. J. T. Bushell, builder, 29, Worley-road, St. Albans.

Shildon (Durham).—Houses for miners; Messrs. J. Douglas & Son, builders, Close House, Durham.

Stourbridge.—School, Brook-street; Mr. V. Rowe, Foregate, Worcester.

Swansea.—The following plans have been passed:—Six houses, Waterloo-place, Brynmill, for Mr. R. Lacey; eight houses, Monterey-street, Manselton, for Mr. Jas. Taylor; seventeen houses, Beechwood-road, for Mr. H. Jenkins; three houses, Eversley-road, for Mr. G. W. Rott; laundry, 2, Duke-street, for Mrs. Gregory; four houses, Vicarage-road, Morriston, for Mr. Thomas.

Tamworth.—Handicraft centre; Mr. T. W. Clifford, builder, Glascote, Tamworth. Drill-hall; Messrs. Lowe & Sons, builders, Curzon-street, Burton-on-Trent.

Trowbridge (Wilts).—School at County Cricket Ground, also alterations to Adcroft School buildings; Mr. W. Pullinger, Secretary, Education Committee, Wilts County Council, Trowbridge.

Tyseley (near Birmingham).—Factory for Messrs. G. Tucker & Co.; Mr. G. A. Cox, architect, 33, Newhall-street, Birmingham; Mr. C. Reeve, builder, Tennant-street, Birmingham.

West Hartlepool. — Accommodation for children at workhouse (10,000*l.*); Mr. G. Kilvington, Clerk, Hartlepool Board of Guardians, West Hartlepool.

Windermere.—Proposed shelters, etc. (about 4,500*l.*); Mr. C. E. Hines, Surveyor, Urban District Council.

* See also our list of Competitions, Contracts, etc., on another page.

CAPITAL AND LABOUR.

State of the Building Trades.

Employment in December continued slack, says the *Board of Trade Labour Gazette*. It showed a decline compared with a month ago, but was rather better than a year ago. The percentage of trade union carpenters and joiners unemployed at the end of December was 10·7 as compared with 9·4 a month ago and 13·9 a year ago; and for plumbers at the same dates the percentages were 11·3, 11·6, and 9·9. In the northern counties and Scotland, where many of the trade union members are engaged in shipbuilding, the percentages unemployed were lower than a month ago. Returns from trade unions of bricklayers, masons, slaters, painters, plasterers, and labourers showed a decline in employment compared with a month ago, and a slight improvement on the whole compared with a year ago. For London the trade union returns showed that 8 per cent. of carpenters and joiners were unemployed at the end of December, as compared with 5·4 a month ago, and 11·3 a year ago. The corresponding percentages for plumbers were 9·5, 12·9, and 13·7. Returns received from 1,140 firms employing 50,730 workpeople at the end of December showed that as compared with a month ago there was a decrease in the total number employed by them of 2·6 per cent. in London, and of 6·7 per cent. in other districts.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week, the Lord Mayor presiding

Appointment of Sanitary Inspectors.—A letter was received from the Local Government Board sanctioning the appointment of Mr. W. S. Matson and Mr. W. E. Mitchener as Sanitary Inspectors in the City of London.

Suggested Swimming-Bath.—A resolution from Aldersgate Wardmote, urging that opportunity should be taken of the vacant land in Shaftesbury-place to secure a site for a swimming-bath in the City for the convenience of the school children, the City Police, and the assistants of the City warehouses, was referred to the Streets and Sanitary Committees.

The Late Mr. Howard Colls.—In moving the appointment of the Rev. J. W. Pratt to the vacancy created on the Distress Committee by the death of Mr. J. Howard Colls, Mr. Deputy Wallace said that the life and labours of Mr. Colls had been a shining example to all aldermen. Sir John Bell said that in Mr. Colls he regretted the loss of an old and personal friend, and one whose name was a household word in the City.

Old Temple Bar.—Mr. Deputy Millar Wilkinson inquired whether any steps had been taken by the City Lands Committee to secure Old Temple Bar for the City. Mr. Deputy Painter, replying, said the Corporation had no control in the matter. No offer had been made to return it to the City; but, in the event of such an offer being made, action would be taken.

Town Planning: Amending Legislation.—A letter was received from the Town Clerk of the Royal Borough of Kensington enclosing a copy of a communication which has been addressed to the Prime Minister, the President of the Local Government Board, and the Members of Parliament for that Borough, urging the amendment of the Housing and Town Planning, etc., Act, 1909, in the direction of the substitution of a judicial tribunal for the Local Government Board as the appeal tribunal thereunder, and expressing the hope that the Corporation, if it concurs in the views put forward in such communication, will also address representations to the Government and to the City Members in favour of the promotion of the suggested amending legislation. The matter was referred to the Streets Committee.

Widening of Lombard-street.—The Improvements and Finance Committee drew attention to an opportunity that had occurred for continuing the widening of Lombard-street by setting back Nos. 24, 25, 26, 27, and 28, which are about to be rebuilt. The Engineer had prepared schemes for effecting the improvement, and the one approved by the Committee consisted of the setting back of the frontage line in Lombard-street about 1 ft. 9 in. at the corner of Nicholas-lane; 1 ft. 10 in. at the corner of Clement's-lane; and 3 ft. 11 in. in the centre (total area about 260 ft. superficial), making the street 30 ft. 8 in. in width at the corner of Clement's-lane, 29 ft. 9 in. in the centre, and 29 ft. at the corner of Nicholas-lane. The Committee recommended that the London County Council should be invited to contribute half the net cost of the work. After some discussion the report was referred back to the Committee.

LAW REPORTS.

KING'S BENCH DIVISION.
(Before Mr. Justice CHANNELL.)

Action against an Architect.

Leicester Board of Guardians *v.* Trollope.

THIS case, which came before the learned judge on Monday, was an action by the plaintiffs against the defendant, Mr. J. E. Trollope, as the sole surviving partner of the firm of Messrs. Giles, Gough, and Trollope, architects, for damages for alleged negligence.

Mr. Hugo Young, K.C., in opening the case for the plaintiffs, said that the good faith of the architects was admitted by the Board of Guardians, but the architects had had too much faith in other people. The matter of dispute was the liability for the serious dry-rot which had been discovered in the infirmary erected for the Leicester Board of Guardians, of which Messrs. Giles, Gough, and Trollope were the architects. So serious had been the dry-rot that 2,000*l.* or 3,000*l.* had been spent in taking up the flooring. It

was too late, counsel added, to recover anything from the builders, because they had been given their final certificate. Counsel read from one of the documents in the case that the clerk of works was to be merely an inspector and assistant to the architects. From this he proceeded to argue that the responsibility now rested upon the surviving partner of the firm of architects.

The building, Mr. Young added, was begun in 1902, and was completed in 1905. The final certificate was given in 1906. The building consisted of four blocks, each of two wards, with an administration block. It was not till 1908 that anything wrong was discovered. Then the subject was investigated. There should have been beneath the ground floor a layer of concrete 6 in. thick, upon which the joists should have been laid and bedded round with 2 in. of finer concrete. Instead, said counsel, the builders had driven into the ground thousands of pegs, rested the joists on the tops of these, and then filled in the concrete at one operation. This left the joists in direct communication with the ground. Each peg was a pipe for drawing up moisture. The whole purpose of the concrete was destroyed.

Counsel then handed to the judge a sample of the fungus of dry-rot.

One of the counsel for the defence: I am told it is very infectious.

The Judge: I hope it will not communicate itself to the woodwork of the court. I am told the woodwork of this court could be shown to possess any defect you like.

Resuming, Mr. Young said: Then the concrete itself was not enough, and the flooring got into such a state that it had to be taken up. After the work was finished a testimonial was given to the clerk of works.

Evidence having been given in support of the plaintiffs' case,

Mr. Pollock, K.C., submitted on behalf of the defendant that his client was not liable. He said the work was not done according to specification through the complicity of the clerk of the works and the builder, but the architects were lulled into security, because all the time the works were going on the clerk of works appeared to fulfil his duties, and made a number of complaints about various matters.

Mr. Trollope, the defendant, examined, said that the clerk of works was appointed to see that the specifications were being carried out.

Cross-examined by Mr. Hugo Young, the witness said he thought he might assume that the plans and specifications were being followed unless his attention was called to something special. Witness admitted that the architect had a duty to supervise the clerk of the works so as to see that the scheme was carried out.

Is it any part of your duty, if the clerk of works tells you that the timber is sound, to see whether it is or is not?—Yes.

If he tells you that the concrete is properly laid, is it any part of your duty to see whether he is truthful or not?—He is there to see that the concrete is the proper depth.

What is the difference between the concrete and the wood?—One is mixed and the other is material. We cannot be there to see every yard of concrete mixed.

May I take it for granted that from first to last you never made the slightest effort to test whether this important matter of flooring was being properly done?—I took it for granted that it was being properly done.

Did you ever appoint anyone beyond the clerk of the works and the quantity surveyor to test any portion of this to see whether your plans were being carried out?—No.

Cross-examined further, the witness said that the person responsible for the plans being carried out in detail was the clerk of the works.

So far as the clerk of works is concerned, you do not suggest that he is not a fit and proper person to appoint?—I do now. I look upon him as a scoundrel.

If you had chosen to check him, instead of relying upon him, you could have prevented all this injury?—Yes, but there was no reason why I should have checked him.

Mr. E. T. Hall, F.R.I.B.A., examined, said that it was the duty of the architect to see that the general scheme of design was carried out, that in bulk the materials were such as were fit and proper to be used, and that the works should all co-ordinate to give effect to the building design. The clerk of works, on the other hand, should see that the detailed methods of construction specified by the architect were duly carried out. It would, added the witness, be physically impossible for the architect to see one-fiftieth part of what was in the building.

Cross-examined: The architect assumed that his ideas were being carried out unless something occurred which led him to think they were not.

If nothing strikes his eye, he is not bound to make investigation?—No; it is physically impossible to test things in the way you suggest.

After addresses by counsel,

Mr. Justice Channell expressed his regret that he would have to give judgment against the defendant in a matter in which he was not greatly in default and in regard to which the plaintiffs had said they made no imputation against him. He had been much impressed with the way in which the defendant had given his evidence. There was nothing in the contract which differed from the ordinary building contract, and it contemplated the appointment of a clerk of works, who was to assist the architect, and the position of such a clerk was well understood. He could not, his lordship added, help seeing that the dry-rot was brought about by collusion between the clerk of works and the builder, though it seemed to him that the builder would not be entitled to rely on the certificate given him by the defendant. The witnesses had agreed that on matters of detail the clerk of works had to see what the architect could not be expected to see. But the flooring was a very important matter. If the defendant had taken steps to see that the flooring of the first block was properly done, and left the rest to the clerk of works with instructions that they were to be done in a similar manner, he would have had some doubt whether the defendant was liable. He did not think the excuse of the architect, that he thought the clerk of works would see that the floor was all right, was sufficient. It seemed to him that the laying of the floor was not a detail which could be justifiably left to the clerk of works; it was a matter of design. He thought that on the agreement to put the matter right the plaintiffs would also have succeeded. He was very sorry to give judgment against the defendant, as he had behaved exceedingly well in the matter and had given his evidence in a very proper way.

Counsel stated that the parties would endeavour to come to terms as to the amount, so as to avoid the necessity for a reference. There would, however, be liberty to apply to the court if necessary.

Judgment was entered accordingly.

CHANCERY DIVISION.

(Before Mr. Justice WARRINGTON.)

City Ancient Light Case.

Stevens & Sons, Ltd., *v.* The Law Union and Rock Insurance Company, Ltd.

THIS was an action for an injunction to restrain the erection of a proposed building in Chancery-lane to such a height that it would interfere with the plaintiffs' ancient lights.

Mr. George Cave, K.C., M.P., and Mr. Harman appeared for the plaintiffs; Mr. Henry Terrell, K.C., M.P., and Mr. Tanner represented the defendants. The facts of the case sufficiently appear from the judgment.

Mr. Justice Warrington said that the plaintiffs, Messrs. Stevens & Sons, are law booksellers and publishers. They are entitled to Nos. 119 and 120 on the west side of Chancery-lane for a term of which about twenty years remain unexpired. Chancery-lane, opposite to the plaintiffs' two houses, is about 36 ft. wide from house to house. On the opposite side of the lane to the plaintiffs' two houses there stood until recently buildings known as Old Serjeants' Inn. They were 48 ft. in height. He was satisfied on the evidence that before the alteration in the defendants' premises the plaintiffs were able to use that basement for the purposes for which they desired to use it on ordinary days in the summer without the use of artificial light, and even on ordinary days in winter. The light must always be deficient, and the plaintiffs had obviously not attributed any great importance to it, because the window was constructed of rolled glass, partially opaque, and in front of that glass there was an iron railing, the uprights of which were of considerable thickness. Still, there was a certain amount of daylight coming into that room, sufficient, as he had already said, in ordinary weather in summer to enable the porters to do their work without the aid of artificial light, and even on some days in winter. With regard to the shop, the two shops, subject to some variation which he would point out directly, were in substantially the same position. They had large shop windows, and there was a door leading into each of the two shops, or rather each division of the one large shop, such door being in each case on the outside of the shop window. The shop windows, if there were nothing else to mention, would admit a very considerable amount of light. The greater part, in fact, of the surface of the plaintiffs' houses on the ground floor consisted of glass windows. But the plaintiffs were booksellers, and they displayed a certain quantity of wares, as usual, in the window of their shop. Accordingly, for perhaps half the window, the light was obscured by rows of books standing on shelves pretty close to each other, and it was further obscured by the fact that the cases in which the books stand were shut in at the back by glass doors, which had been painted over with white paint, which admitted a certain amount of light, but at the same time also excluded a certain amount of light. But up above the books, and for certainly a good half of the window, the glass was not obstructed in this way, but freely admitted the light which impinged on it. The plaintiffs' houses had not been recently built, and, quite independently of the fact that there was no question as to the antiquity of their lights, it was, he thought, material to mention that the two houses were in the same position in which they had been for certainly thirty-five years past; how much longer than that he did not know.

What was the question that he (the learned judge) had to determine. There were, it seemed to him, two questions. He had first to determine what was the right which the plaintiffs had acquired by their enjoyment of the light which they had enjoyed for upwards of twenty years past, and having once arrived at what it was that they had acquired, he had then to determine whether what the defendants were about to do was such a material and substantial interference, or rather would be such a material and substantial interference, with that right as to give a right of action. It became important to consider whether what the plaintiffs had hitherto enjoyed was or was not in excess of that which by their enjoyment they were entitled to acquire. Had the plaintiffs hitherto enjoyed more light than that which was required for the ordinary purposes of inhabitancy or business of their tenements? For this purpose the question of locality became of importance, because he had to determine what, according to the ordinary notions of business men, was sufficient light for the purposes of the inhabitancy or occupancy of these premises, which were situated in a business part of London. He had listened carefully to the evidence, and on the evidence before him he found that, according to the standard of ordinary persons carrying on business in this locality, the light enjoyed by the plaintiffs' premises had never been more than sufficient for the beneficial use and enjoyment of those premises for the purposes for which it had been enjoyed. He thought, therefore, in other words, that what the plaintiffs were entitled to was that which they had hitherto enjoyed. Having arrived at that, the question was, Would the proposed building of the defendants' so interfere with the light which the plaintiffs had hitherto enjoyed, and to which he thought they were entitled, as to give rise to a cause of action—that was to say, as to be a nuisance? What interference was it which would amount to a nuisance? It was such an interference, such a diminution of light, as would substantially interfere with the beneficial use of the plaintiffs' premises for the purposes of their business or for general purposes of business, or occupancy of such a kind as premises in that neighbourhood were likely to be occupied for. Again, on the facts, he found that, at all events as regarded the shop, the erection of buildings to the height to which the defendants proposed to

carry their buildings would deprive the plaintiffs of such an amount of light that the shop, at all events, would be less beneficial than it had hitherto been for the purpose of their business—that they would carry on their business with a substantial amount of discomfort and with such a substantial amount of discomfort as, according to the ordinary notions, the notions of ordinary people, would amount to a nuisance.

The result was that he found that the erection of the defendants' building would cause material and substantial diminution of that light to which the plaintiffs were entitled, and so materially and substantially as materially to reduce the beneficial value of the plaintiffs' houses to them; and, that being so, the plaintiffs were, he thought, entitled *primâ facie*, at all events, to an injunction to restrain the erection of defendants' building in the way it was now proposed to erect it. It had been argued that he ought not to grant an injunction, but to award the plaintiffs damages. He did not think he ought to take that course in this case, even if in some cases it might be proper to do so. He thought the interference with this shop would be substantial and important, and, further, he had evidence that the erection of the new building would affect the value of the shop and of the plaintiffs' house generally, both from the point of view of rental and from the point of view of capital value. That being so, he thought this was one of those cases in which the Court was not justified in saying that the plaintiffs should be compelled to give up that part of the value of their property which was represented by the light which would thus be interfered with. He thought all he could do was to take the course of granting the usual injunction in such a case, and, of course, the defendants must pay the costs of the action.

Solicitors: for the plaintiffs, Messrs. Stanley Evans & Co., Theobald's-road; for the defendants, Messrs. Robins, Hay, & Co., Lincoln's Inn-fields.

LONDON COUNCILS.

Barking.—Specifications are to be prepared and tenders invited for widening Ripple-road, at an estimated cost of 460*l.* The Surveyor is to prepare plans and estimates for making-up the continuation of Devons-road. The following plans have been passed:—Mr. E. E. Cross, four houses, Hulse-avenue; Mr. G. West, three houses, Longbridge-road; Mr. A. Blake, six shops, East-street.

Battersea.—Repairs are to be executed, at an approximate cost of 100*l.*, to a brick sewer in Plough-road.

Berkhampstead.—Plans have been passed by the Urban District Council as follows:—Messrs. W. H. Smith & Son, alterations to No. 143, High-street; Messrs. T. F. & H. Dwight, four cottages, George-street.

Bushey.—Plans for a parish hall, Bushey Heath, for the Vicar of St. Peter's Church, have been passed by the Urban District Council.

Croydon.—The Rural District Council has accepted the tenders of Mr. E. Yewen, St. James'-road, Croydon, at 809*l.*, for making-up Purley Knoll, and at 155*l.* for making-up Gorringe Park-avenue. They have further accepted the quotation of Messrs. E. & E. Iles, Wimbledon, at 220*l.*, for making-up Kensington-terrace, Sanderstead. The County Council have passed plans as follows:—Mr. C. S. Banks, stores, Lower Addiscombe-road; Messrs. Alder & Wheeler, thirty houses and shops, London-road, Norbury; Mr. R. Palmer, eight houses, Bingham-road; five houses, Sherwood-road; Messrs. Chown & Sheffield, seven houses, Pollard's-hill North; Mr. C. Spencer, addition to skating rink, also conversion of hall into electric theatre, London-road, King Edward Hall, and electric theatre, Brigstock-road.

Finchley.—Arrangements have been come to with the Ecclesiastical Commissioners whereby the Council are to purchase land on the east side of Great North-road for the purposes of an elementary school. Plans have been passed for Mr. A. J. Teil for five motor garages, etc., in Holden-road. The Brent Garden Village, Ltd., have lodged plans for 127 houses at the Brent Garden Village, Nether-street.

Hackney.—The Council has appointed representatives, jointly with Shoreditch and Stoke Newington, to wait upon the Improvements Committee of the L.C.C. with regard to the suggested widening of Kingsland-road and Old-street near the Shoreditch Railway Station. 220*l.* is to be spent in reconstructing a sewer in Beecholme-road.

Hendon.—The Rural District Council have passed plans as follows:—Mr. W. C. Musgrave, seven houses, Cornwall-road, Pinner; Mr. J. C. Rackham, four houses, Charity-place, Hatch End, Pinner; Mr. W. A. Addinsell, motor-house, Harrow Weald Lodge.

Holborn.—It is proposed to spend during the ensuing financial year 7,044*l.* on paving carriageways, 1,159*l.* on paving footways, and 960*l.* on sewerage works. Mr. Douthwaite, the Under-Treasurer of Gray's Inn, has informed the Council that the Benchers propose, during the present year, to remake the roadway and pavements of Gray's Inn-square, and at the same time to carry out certain improvements in the laying-out of the central space. The cost of the paving works is estimated at 1,837*l.*

Hornsey.—The following plans have been passed:—Mr. P. F. Crebbin, two domestic buildings, Springfield-avenue, Muswell Hill; Mr. John Farrar, 2, Coleman-street, E.C.; six houses, Park-avenue North; Messrs. Whitbread & Co., alterations and additions to No. 194, Weston-park, Hornsey; Messrs. Mark H. Judge & Son & Hayler, 7, Pall-mall, S.W., alterations and additions to "Gothic Cottage," North-hill, Highgate.

Stepney.—Application is to be made to the L.C.C. for a loan of 4,630*l.* for the proposed Narrow-street improvement (2,333*l.*), for the proposed Three-Colt-street improvement (1,062*l.*), and other works which have been completed. A sewer in Betts-street is to be reconstructed at an estimated cost of 200*l.*

Walthamstow.—Plans have been passed as follows:—Mr. A. G. Barton, two factories, Hale End-road; Mr. E. C. P. Monson, twenty-two houses, Tregunter, Clivedon, and Sheridan roads; Mr. S. W. Robinson, ninety houses and three shops, Empress-avenue, Grove Park-avenue, and Chingford-road; Mr. A. Dixon, alterations, etc., "Windmill," Grosvenor Park-road; Mr. T. H. Gaskin, seventeen houses, Oak Hill-gardens; Mr. J. W. Warboys, four houses, Pembroke-road. Plans have been lodged by Mr. W. F. Atkins for a chapel in Brookscroft-road.

OBITUARY.

Mr. Murray.

We mentioned in our last issue the death, on January 17, at his residence, No. 9, Marlborough-hill, St. John's Wood, N.W., of Mr. Andrew Murray, aged seventy-two years, formerly Surveyor to the Corporation of the City of London. Mr. Murray was elected in 1872 an Associate, and in June, 1899, a Fellow, of the Royal Institute of British Architects. On leaving the City of London School in 1854, he entered the service of the Corporation, in the Architect's Department, wherein, under J. B. Bunning, Sir Horace Jones, and A. M. Peebles, in succession, he shared in the designing and erection of the new buildings for Billingsgate, Deptford, Islington, Leadenhall, and West Smithfield markets, the Guildhall School of Music, Whitefriars (by Sir Horace Jones), the Cannon-street and Holborn Viaduct improvements, and similar works. Upon the death, in May, 1891, of A. M. Peebles, the titular office of Architect to the Corporation was abolished, and Mr. Murray was appointed City Surveyor; after fifty years' service, he retired upon a pension in May, 1904. Mr. Murray was the architect of the City of London Court (illustrated in the *Builder* of December 24, 1887), and its enlargement, 1893, in Basinghall-street; Weights and Measures Offices, Guildhall, and offices on the site of the City Chamberlain's Office; Ward's City of London Girls' School, Victoria-embankment, for 400 pupils, 1892-3; City Police Stations, in the Minories, and in Moor-lane, with quarters for sixty-seven constables, clothing and store departments, etc; extension, with thirty new classrooms, of the Guildhall School of Music, 1897-8; enlargement, at a cost of 250,000*l.*, of the City of London Asylum, Stone, near Dartford, with chapel, two infirmaries, etc., 1898-1901; extensions, begun in 1896, of the Deptford Foreign Cattle Market, comprising the new piers and lairages, having a river frontage of 300 yds., the chill and cooling stores, boiling-houses, slaughter-houses, and many other buildings, at an outlay of some 160,000*l.*; Sanitary Hospital, and the Water Tower at Denton, near Gravesend for the (old) Port of London; premises on the site of Nos. 73-101, Old Kent-road for the Bridge House Estates Committee, and the Leroy-street improvement: City Mortuary, Shelter, etc., Golden-lane, 1900; crematorium, City of London Cemetery, Little Ilford; Queen Victoria, and City Boundary, Memorial, Victoria-embankment: restoration in 1900 of the porch (1425), and oaken doors, in the XVth-century style, Guildhall: enlargement of the Guildhall Art Gallery: and decoration (by Gillows) of the Mansion House, 1897; and, in 1900-2, rebuilding on the John Carpenter Estate of the Corporation, between Gower-street and Tottenham Court-road, as originally planned, with the two circuses, by the younger Dance. In February, 1899, Mr. Murray was appointed with Professor Aitchison, to draw the instructions to the six nominated architects for the Sessions House and Central Criminal Courts, Old Bailey; and he was associated with Mr. G. E. W. Cruttwell, M.Inst.C.E., in the widening of London Bridge, carried out by Messrs. Pethick Bros., of Plymouth, who tendered for 95,485*l.*, in 1902-4.

FOREIGN AND COLONIAL.

Great Britain in Argentina.

The result of the appeals against awards made by the various juries in the Railway and Land Transport Exhibition at Buenos Aires has proved to be in favour of Great Britain. Whereas in the first list the total number of awards to British exhibitors was 222, as compared with 171 to Germany, on the amended list Great Britain has gained seven (229), and Germany lost one (170). Great Britain has gained another Grand Prix, the number of Grand Prix now being increased from eighty-two to eighty-three, as against seventy gained by Germany.

Works, French West Africa.

The French *Journal Officiel* of January 10 publishes a decree, issued by the Ministry of the Colonies, authorising the communal authorities at Dakar to contract a loan of 1,500,000 francs (60,000*l.*), of which 16,600*l.* will be used for building a covered market, 15,600*l.* for a town hall, and 27,800*l.* for road works.

Hotels, Congo State.

The British Acting Consul at Boma (Mr. G. Campbell) reports that the construction of new hotels at Matadi, Thysville, and Kinshasa is projected. The name and address of a firm to whom communications might be addressed in this connexion may be obtained by British firms on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

Customs House, Rosario, Argentina.

The *Boletin* of December 13 contains a decree approving the plans, submitted by Messrs. Ochoa & Medhurst Thomas, for the erection of a building intended for a customs-house at Rosario. The cost of the undertaking is estimated at 1,551,000 pesos (about 136,000*l.*), but the commencement of operations will have to be deferred until congress has sanctioned the necessary credit.

PATENTS.

APPLICATIONS PUBLISHED.*

24,775 of 1909.—John Phelps and Harry Wakeman: Tubular mortice night latches.

29,917 of 1909.—Frank Herbert Shorland: Heating stoves.

30,231 of 1909.—Franz Schmidt: Wood flooring.

30,537 of 1909.—Thomas West: Joints for sanitary ware pipes.

81 of 1910.—Hedley Jeffreys Thomson: Magnetic devices for holding up riveting tools.

642 of 1910.—James Stott, Vernon Heywood Stott, and Lee Schofield: Water heaters.

646 of 1910.—John Junkunc: Locks.

652 of 1910.—Edward le Bas and Herbert Thomson Garvie: Apparatus for moulding pipes in cement and concrete.

2,218 of 1910.—James Robert Slade Hayes: Stair-rod eye and fastener.

3,290 of 1910.—Manoel Ferreira Tunes: Machine for carving wood or other substances.

3,787 of 1910.—Charles Shaw: Door stays and like fastenings.

6,096 of 1910.—Edward Matthews: Slop-stone or sink outlet pipe protectors.

6,157 of 1910.—William Ripper: Machines for testing the cutting efficiency of files.

8,564 of 1910.—Harry James Yates: Gas fires and similar heating apparatus.

12,615 of 1910.—Julius Goldschlager: Construction of girders.

12,743 of 1910.—James Edward Tuke and Charles William Bell: Manhole covers.

13,558 of 1910.—Henry Forrington Wilson: Apparatus for rapidly heating water for domestic purposes.

14,103 of 1910.—Elia Bianchi: Process and apparatus for casting beams of reinforced or ferro-concrete.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

PATENTS—*Continued on page 126*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, — ; Contracts, iv. vi. viii. x.; Public Appointments, xvii.; Auction Sales, xxiv.

Certain conditions beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

JANUARY 30. — **Bristol.** — COTTAGES AND GARDENS. — Competition open to architects, builders, and others at the Housing and Cottage Exhibition, Bristol. See advertisement in issue of January 6 for further particulars.

JANUARY 31. — **Glasgow.** — BRANCH LIBRARY.—The Corporation invite competitive plans of a Branch Library proposed to be erected at Possil-park. The terms and conditions of the competition may be obtained on application to the Subscriber. Mr. A. W. Myles, Town Clerk, City Chambers, Glasgow.

FEBRUARY 1. — **Hull.** — The Guardians invite competitive designs for a suite of offices proposed to be erected on land in Margaret-street, Hull. Particulars as to the accommodation required will be furnished on application to Mr. J. H. Wild, Solicitor, Clerk to the Guardians, 12, Harley-street, Hull

FEBRUARY 1.—**Southport.**—DESIGN FOR A NEW PUBLIC ELEMENTARY SCHOOL.—Open to architects practising in the Borough and in Birkdale. Particulars from Mr. J. Ernest Jarratt, Town Clerk, Town Hall, Southport.

FEBRUARY 28. — **Corbridge.** — The Hexham R.D.C. invite duly qualified civil engineers to submit schemes for sewage disposal. Information can be obtained from the Clerk to the Parochial Committee (Mr. E. Pearson, Corbridge).

MARCH 1.—**Peniston.**—LIBRARY.—Limited to architects within 30 miles of Peniston.

MARCH 15. — **San Salvador.** — SCHEME FOR A CITY THEATRE. — First premium, 8,000 francs; second, 4,000 francs. Particulars from Mr. M. J. Kelly, 8, Idol-lane, E.C.

MARCH 31.—**Manchester.**—LIBRARY AND ART GALLERY. — The Manchester Corporation invite designs for Library and Art Gallery upon the Piccadilly site. See advertisement in issue of January 13, and article in issue of January 20.

MARCH 31. — **Romford.** — The Town Planning and Modern House and Cottage Exhibition invite designs for the general plan of Gidea Park, Squirrels Heath, Romford. For further particulars see advertisement in our issue of September 17, and of October 8.

MARCH 31.—**Trondhjem, Norway.**—PROPOSED HARBOUR AND RAILWAY EXTENSION.—Competitive designs for above are invited by the Joint Committee of the State Railways and the City Harbour Commissioners. See our issue of November 5, page 563, and that of October 15, page 444, for further information.

APRIL 1.—**Coventry.**—MUNICIPAL OFFICES.—The Coventry Corporation invite competitive designs for erection of Municipal offices and a Town Hall, to cost 50,000*l.* Premiums of 150*l.* (supplementary), 175*l.*, and 125*l.* Mr. E. Guy Dawber, F.R.I.B.A., has been appointed assessor. See article on page 686 and advertisement on page iv. in our issue of December 3. Also see advertisements in issues of November 19 and January 6 for further particulars.

APRIL 15.—**Havana.**—Project for a Presidential Palace. See "Competition News" in issue of November 26. Particulars may be obtained at the Cuban Legation, 3, Grosvenor-mansions, Victoria-street, S.W.

JUNE 10. — **Aspatria, Cumberland.** — The U.D.C. invite engineers to submit plans for estimates of a scheme of sewerage. The surveyor will give particulars required.

AUGUST 15.—**Berne.**—Designs for the erection of a monument at Berne to celebrate the foundation of the International Telegraph Union. Conditions may be seen in the library of the Royal Institute of British Architects.

AUGUST 21.—**Athens.**—COURT OF JUSTICE.—An international competition is instituted by the Ministry of the Interior, for the erection of Court buildings, to cost 160,000*l.* The *Official Gazette* may be seen at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

NOVEMBER 1. — **City of St. Petersburg.** — MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

DECEMBER 29. — **Glasgow.** — DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Preminums of 60*l.* and 20*l.* are offered. See advertisement in issue of December 24 for further particulars.

NO DATE. — **Bradford.** — INFIRMARY. — The Board of Management of the Bradford Royal Infirmary invite competitive plans, with estimates, for the erection of a new infirmary on a site in Duckworth-lane. See advertisement in issue of December 31 for further particulars.

NO DATE.—**Leicester.**—PROPOSED PUBLIC HALL.—The Corporation invite the practising architects of Leicester, having offices in the town, to supply plans, designs, and estimates for the construction of a new Public Hall, proposed to be erected on land adjoining the Victoria Park and Regent-street. Conditions of competition can be obtained on application, accompanied by a deposit of 1*l.* 1s., being made to Mr. E. George Mawbey, M.Inst.C.E., Borough Surveyor, Town Hall, Leicester.

NO DATE.—**Rio de Janeiro.**—The Chamber of Deputies of Brazil contemplate the erection of a Faculty of Medicine, with a clinical hospital, in Rio de Janeiro. Conditions may be seen at the Office National du Commerce, 3, Rue Feydean, Paris.

NO DATE.—**Southampton.**—NEW BUILDINGS.—The Council of Hartley University College invite designs for proposed new buildings. See advertisement in issue of January 6 for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 28.—**Leeds.**—VILLA.—The erection of a villa, Pool Bank New-road. Application must be made to Mr. Arthur Winch, architect, 23, Park-row, Leeds.

JANUARY 28. — **Morton Banks, Keighley.**—HOUSES.—For the various works for two pairs of semi-detached houses at Morton Banks. Names on or before January 28 to Messrs. John Haggas & Sons, North-street, Keighley.

JANUARY 28.—**Tantobie.**—WAREHOUSES, ETC.—For the erection of warehouses, hall, and stables for the Tantobie Co-operative Society, Ltd. Application to be made to the architect, Mr. L. G. Elkins, Co-operative Wholesale Society, West Blandford-street, Newcastle-upon-Tyne.

JANUARY 30. — **Darlington.** — ELEMENTARY SCHOOL.—The T.C. invite tenders for the erection of an elementary school in Reid-street. Plans, etc., may be seen, and quantities obtained, at the offices of Mr. George Winter, Borough Surveyor, Town Hall, Darlington, on depositing a cheque for 2*l.* 2s.

JANUARY 30-FEBRUARY 15.—**Southampton.**—ADDITIONS TO INFIRMARY.—The Guardians invite tenders for the erection of two additional pavilion blocks, extension of nurses' home, and other works, at the Shirley Warren Infirmary. Specification, etc., upon application at the office of the architect, Mr A. F. Gutteridge, of 9, Portland-street, Southampton. Quantities (application for which must be made not later than the 30th inst.) will be supplied upon the deposit with the architect of 1*l.* 1s.

JANUARY 31.—**Addingham.**—ALTERATIONS AND ADDITIONS TO HIGH SCHOOL.—West Riding C.C. (Addingham District Sub-Committee) invite tenders for alterations and additions at the Addingham High Council School. Specifications can be obtained from Mr. T. W. Padgett, Divisonal Clerk, Otley.

JANUARY 31. — **Broadway, Worcestershire.**—COTTAGES.—The Directors of the Great Western Railway invite tenders for the erection of two cottages. Plans, etc., may be seen, and forms obtained, at the office of the engineer at Gloucester Station.

JANUARY 31.—**Dalry, Ayrshire.**—WALL AND FENCING.—Irvine and District Water Board invite separate tenders for (1) taking down existing wood paling and building about 780 yds. of stone or brick wall; (2) for taking down existing wood paling and supplying and erecting about 970 yds. of continuous iron-bar fencing at the Munnoch Reservoir, Dalry, Ayrshire. Plans may be seen, and specifications, etc., obtained, from Mr. Gilbert Christie, Engineer, Central Offices, Kilwinning, on payment of 1*l.* for either of the specifications.

JANUARY 31.—**Maerdy.**—CHAPEL AND SCHOOLROOMS.—The Trustees of Ebenezer C.M. Church, Maerdy, invite tenders for the erection of chapel and schoolrooms. Plans, etc., to be seen at office of Mr. R. S. Griffiths, M.S.A., architect and surveyor, Tonypandy, and quantities supplied on deposit of 2*l.* 2s.

JANUARY 31.—**Roche, Cornwall.**—COTTAGE.—The Directors of the Great Western Railway invite tenders for the erection of a cottage at Roche Station. Plans, etc., may be seen, and forms obtained, at the office of the engineer at Plymouth, North-road, Station.

JANUARY 31.—**Sheffield.**—TRAMWAY PASSENGER SHELTERS.—The Tramways Committee invite tenders for the erection of tramway passenger shelters at certain points. Drawings may be seen, and quantities and forms obtained, on application to the City Architect, Town Hall, Sheffield.

FEBRUARY 1.—**Pontefract.**—SCHOOLS.—For the various trades in the erection of new schools for 750 pupils, at Love-lane. Names to Messrs. Tennant & Collins, architects and surveyors, Pontefract.

FEBRUARY 2. — **Knostrop, Leeds.** — WEIGH-BRIDGE OFFICE.—The Leeds Sewerage Committee invite tenders for the erection of a weigh-bridge office at their sewage works. Drawings, etc., can be inspected at the office of the Sewerage Engineer, Mr. G. A. Hart, Great George-street, Leeds, and copies obtained upon receipt of a deposit of 1*l.* 1s

* FEBRUARY 2. — **London, S.E.**—EXTENSION OF POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for extension of the South-Eastern District Post-office. See advertisement in this issue for further particulars.

* FEBRUARY 2. — **London, E.**—RECONSTRUCTING STAIRCASES.—The Guardians of St. George in the East invite tenders for reconstructing certain staircases at Plashet Schools, Green-street, Upton Park, E. See advertisement in this issue for further particulars.

FEBRUARY 6.—**Aberdeen.**—COTTAGES.—For the mason, carpenter, slater, and cement works required in the erection of cottages in the parishes of Tarves, Methlick, and New Deer (Haddo House Estates). Plans, etc., may be seen at the Estate Office, Haddo House, Aberdeen.

FEBRUARY 6. — **Ilkley.** — RESIDENCE.—For the erection of a residence. Plans may be seen, and quantities obtained, on February 1 at the offices of Mr. W. H. Herbert Marten, Licentiate R.I.B.A., 3, Cookridge-street, Leeds.

FEBRUARY 6.—**Middlesbrough.**—UNDERGROUND CONVENIENCES.—The Sanitary Committee invite tenders for the construction of the underground conveniences at Market-place and junction of Marton and Cargo Fleet roads. Plans, etc., may be seen, and quantities obtained, on application at the office of Mr. S. E. Burgess, M.Inst.C.E., Borough Engineer, Borough Engineer's Office, Municipal-buildings.

FEBRUARY 6.—**Risca.**—WORKING-CLASS HOUSES.—The U.D.C. invite tenders for the erection of ninety-seven houses. Plans may be seen, and specifications obtained, on application to the Surveyor, Mr. A. J. Dardis, at the Council Offices, Risca, Mon., on deposit of 2*l.* 2s.

FEBRUARY 7. — **Armagh.** — IMPROVEMENTS TO WORKHOUSE.—The Guardians invite tenders for carrying out a drainage system and erecting bathrooms and other additions at the Union Workhouse. Drawings, etc., and quantities, etc., obtained, on deposit of 2*l.* 2s., at the office of Mr. W. Calvert, Clerk of the Union, Clerk's Office, Workhouse, Armagh, and at the office of Messrs. W. H. Stephens & Sons, surveyors, 13, Donegall-square North, Belfast.

FEBRUARY 7. — **Brighton.** — ALTERATIONS TO PAROCHIAL OFFICE.—The Guardians invite tenders for the execution of certain alterations, etc., to an office at the Parochial Offices, Prince's-street, Brighton. Specification, etc., may be obtained on application to Mr. B. Burfield, Clerk to the Guardians, Parochial Offices, Prince's-street, Brighton.

FEBRUARY 7. — **Chillerton, Isle of Wight.**—PUMPING STATION BUILDINGS. — The U.D.C. of Shanklin invite tenders for the erection of the pumping station buildings, etc., at Rome Meadow. Plans, etc., may be seen, and forms obtained, at the Council Chambers, Shanklin.

FEBRUARY 7. — **Rochdale.**—ALTERATIONS.—The General Purposes Committee invite tenders for alteration of the departmental offices in the Town Hall. Schedules can be obtained at the Borough Surveyor's Office.

* FEBRUARY 8.—**Watford.**—DOMESTIC ECONOMY CENTRE.—The Hertfordshire C.C. invite tenders for a new domestic economy centre at Grosvenor-road, Watford. See advertisement in this issue for further particulars.

* FEBRUARY 9. — **Banbury.** — POST-OFFICE EXTENSION.—The Commissioners of H.M Works and Public Buildings invite tenders for extension of post-office, Banbury. See advertisement in this issue for further particulars.

* FEBRUARY 9.—**Dulwich.**—CHIMNEY SHAFT.—The Southwark Guardians invite tenders for rebuilding upper part of chimney shaft at the Infirmary. See advertisement in this issue for further particulars.

FEBRUARY 9.—**Glencolumbkille, Co. Donegal, and Valencia Island, Co. Kerry.**—HOUSES, ETC.—The Commissioners of Irish Lights invite tenders for the erection of one block of four dwellings, with store, office, ladder shed, ashpit, and fencing at Glencolumbkille, Co. Donegal, and for one similar house at Valencia Island Lighthouse, Co. Kerry, according to plans, which can be seen at Engineer's Office, Irish Lights Office, Carlisle-buildings, Dublin. Quantities and forms will be forwarded on receipt of application, accompanied by 2*l.* 2s. for each set required.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 9.—**Gomersal.**—COUNCIL SCHOOL.—The West Riding Education Committee invite whole or separate tenders for the erection of Gomersal new school. Plans may be seen, and specifications, with quantities, obtained, on application to the Education Architect, County Hall, Wakefield. A plan may also be seen at the office of the Divisional Clerk, Heckmondwike. A sum of 1*l.* in each case must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

FEBRUARY 9.—**Sherborne.**—COUNCIL SCHOOL.—Dorset C.C. Education Committee invite tenders for the erection of a new elementary school. Plans, etc., may be seen at the County Surveyor's Department, County Offices, Dorchester, and at the offices of Messrs. Fletcher, Son, & Brett, Wimborne.

FEBRUARY 9.—**Southampton.**—ADDITIONS TO PIER PAVILION.—The Harbour Board invite tenders for small additions to the pavilion, Royal Pier. Specification, etc., may be seen upon application to Mr. E. Cooper Poole, A.M.Inst.C.E., Engineer and Surveyor to the Board, and quantities, etc., obtained upon payment of 1*l.* 1*s.*

FEBRUARY 13.—**Belfast.**—VILLAS.—The Asylum Committee invite tenders for the erection of two additional villas on their Purdysburn Estate. Plans, etc., may be inspected at the office of the architects, Messrs. Watt, Tulloch, & Fitzsimons, 77A, Victoria-street, Belfast, and quantities obtained on application to Mr. R. Meyer, Town Clerk, on deposit of 2*l.* 2*s.*

FEBRUARY 13.—**Bolton-upon-Dearne.**—WORKING-CLASS DWELLINGS.—The U.D.C. invite tenders for the erection of forty-eight dwelling-houses at Highgate. Drawings, etc., may be seen on application to the Surveyor, Mr. J. W. Wilson, Council Offices, Station-road. Quantities and forms may be obtained at the Council Offices on payment of 2*l.* 2*s.*

FEBRUARY 13.—**Gravesend.**—OPEN-AIR SWIMMING BATH.—The T.C. invite tenders for the construction of an open-air swimming bath in the Gordon Recreation Ground; also for the construction of water supply drains, etc., for the above. Plans, etc., may be seen at, and quantities, etc., obtained from, the Borough Surveyor's Office, Gravesend, on and after January 30, on payment of 1*l.*

FEBRUARY 14.—**Wandsworth.**—UNDERGROUND CONVENIENCES.—The Wandsworth B.C. invite tenders for the construction of underground sanitary conveniences. See advertisement in this issue for further particulars.

* FEBRUARY 15.—**Caterham.**—PUMP-ROOM, ETC.—The Metropolitan Asylums Board invite tenders for alterations and additions and forming new pump-room. See advertisement in this issue for further particulars.

* FEBRUARY 15. — **Portsmouth.** — SOLDIERS' MARRIED QUARTERS.—The Secretary of State for War invites tenders for erection of married soldiers' quarters in two blocks of flats. See advertisement in this issue for further particulars.

* FEBRUARY 15.—**Tottenham, N.**—COAL STORE, ETC.—The Metropolitan Asylums Board invite tenders for erection of house coal store and ashpit, etc., at the North-Eastern Fever Hospital. See alvertisement in this issue for further particulars.

* FEBRUARY 17.—**London.**—ADDITIONS TO ROYAL MINT.—The Commissioners of H.M. Works, etc., invite tenders for erection of a new die and seal department at the Royal Mint. See advertisement in this issue for further particulars.

FEBRUARY 21. — **Tranmere.** — ADDITION TO WORKHOUSE.—The Guardians of the Birkenhead Union invite tenders for the addition of a new story to the main block, Union Workhouse, Church-road. Quantities may be obtained from Messrs. Edmond Kirby & Sons, architects, 5, Cook-street, Liverpool, upon deposit of 5*l.* 5*s.*

FEBRUARY 22.—**Woking.**—UNDERGROUND SANITARY CONVENIENCE.—The U.D.C. invite tenders for the construction of an underground sanitary convenience near to the Victoria Arch. Plans, etc., can be obtained, upon payment of 1*l.* 1*s.*, from Mr. G. J. Wooldridge, Surveyor, Council-chambers, Woking.

FEBRUARY 25.—**Twerton, Bath.**—PUMPING-STATION BUILDINGS.—The Bath Corporation invite tenders for the erection of engine-house, suction-gas house, and other appurtenant works, in Midland-road. Plans may be seen, and quantities obtained, at the office of the Engineer, Mr. W. H. Radford, C.E., Albion-chambers, King-street, Nottingham, on deposit of 2*l.* 2*s.*

* FEBRUARY 27. — **Swansea.** — ADDITIONS AND ALTERATIONS.—The Swansea Education Committee invite tenders for large alterations and additions to Council School, Neath-road, Morriston, Swansea. See advertisement in this issue for further particulars.

NO DATE. — **Ashton-under-Lyne.**—DISINFECTING STATION.—For erection of proposed disinfecting station at the Town's Yard, Wellington-road. Plans may be seen, and quantities obtained from Messrs. John Eaton, Sons, & Cantrell, architects, etc., Ashton-under-Lyne.

NO DATE.—**Castleford.**—OFFICES.—For erection of block of offices, etc., for the Glass Houghton and Castleford Collieries, Ltd. Quantities and all particulars may be obtained from Messrs. Garside & Pennington, architects and surveyors, Ropergate, Pontefract; Central-chambers, Castleford.

NO DATE.—**Chesterfield.**—HOUSE.—Erection of a house in Park-road. Apply to Mr. Tom S. Wilcockson, architect, Chesterfield.

NO DATE. — **Horsforth.**—SUNDAY-SCHOOL.—For the erection of a P.M. Sunday-school. For quantities apply to the architect, Mr. Fredk. Musto, A.R.I.B.A., 7, Queen-square, Leeds.

* NO DATE.—**Leeds.**—ADDITIONS.—Tenders are invited for proposed extension of the textile buildings at Leeds University. See advertisement in this issue for further particulars.

NO DATE.—**St. Bees and Irthington.**—CLOAK-ROOMS, ETC., TO SCHOOLS.—Cumberland Education Committee invite tenders for the whole of the work required in the erection of new cloak-rooms, etc., at St. Bees and Irthington Council schools. Drawings, etc., may be seen at the office of the Clerk of Works, Mr. J. Forster, 13, Earl-street, Carlisle.

ENGINEERING, IRON, AND STEEL.

JANUARY 31.—**London.**—ELECTRICAL SUPPLIES.—West Ham B.C. invite tenders for the supply of cables, electrical fittings, motors, etc. Forms of tender, and further particulars, may be obtained of the Electrical Engineer, 84, Romford-road, Stratford, E. A deposit of 1*l.* will be required in respect of each form of tender.

FEBRUARY 2.—**London.**—GAS FITTINGS.—The Guardians of the Poor of the parish of St. George-in-the-East invite tenders for providing and fitting up new gas fittings at the Plashet Schools, Green-street, Upton Park, E. Specification, etc., can be obtained of the architect, Mr. T. W. Aldwinckle, F.R.I.B.A., 20, Denman-street, London Bridge, S.E.

FEBRUARY 3.—**India.**—GIRDER BRIDGES.—The Assam Bengal Railway Company, Ltd., invite tenders for girder bridges. Specifications and forms may be obtained at the offices of the Company, Bishopsgate House, 80, Bishopsgate, London, E.C. A fee of 1*l.* 1*s.* is charged for each specification (not returnable). Drawings may be had at the cost of the tenderer by application to Messrs. Hodges, Bennett, & Co., 113, Cheapside, E.C.

FEBRUARY 4.—**Glasgow.**—CAST-IRON PIPES.—The Corporation invite tenders for supplying about 470 tons of cast-iron pipes and special castings, 24 in. in diameter, required for a new main in Springburn. Drawings may be seen, and specification, etc., obtained on application to Mr. J. R. Sutherland, Engineer, Water Department, 45, John-street.

FEBRUARY 4. — **Reeth.** — WIDENING AND STRENGTHENING BRIDGE. — The North Riding of Yorkshire C.C. invite tenders for the work in connexion with the widening and strengthening of the Gunnerside Little Bridge (stone). Plans, etc., may be seen, and quantities obtained, at the office of Mr. W. G. Bryning, County Surveyor, County Hall, Northallerton.

FEBRUARY 6.—**North Berwick.**—CAST-IRON PIPES.—The Provost, etc., of the Burgh of North Berwick invite tenders for providing and delivering about 650 tons of 8-in. diameter dry sand cast-iron pipes and special castings. Specification, etc., may be obtained at the office of the Engineers, Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh, on payment of 1*l.*

FEBRUARY 8. — **Barking.** — IRON FENCING.—Barking Town U.D.C. invite tenders for the supply and erection of wrought-iron railing, with gates, and cast-iron gate pillars. Plan may be seen, and full particulars obtained, upon application at the office of the Surveyor to the Council, Public Offices, Barking.

FEBRUARY 10.—**Bristol.**—RECONSTRUCTION OF BRIDGE.—The Docks Committee invite tenders for the reconstruction of the plate girder bridge, known as Marsh Bridge, carrying Avon-street over the Feeder Canal. Specification, etc., can be obtained, on production of a receipt showing that a deposit of 5*l.* has been paid to the Secretary of the Docks Committee, Docks Office, 19, Queen-square, Bristol, to whom cheques must be made payable, from Mr. W. W. Squire, Engineer, Engineer's Office, Cumberland-road, Bristol.

* FEBRUARY 15.—**Caterham.**—VERTICAL STEAM ENGINE, ETC.—The Metropolitan Asylums Board invite tenders for installation of a vertical steam-engine and horizontal steam service-pump, with piping connexions. See advertisement in this issue for further particulars.

FEBRUARY 15.—**Kidwelly.**—WIDENING BRIDGE.—Carmarthenshire C.C. invite tenders for the widening of Kidwelly Bridge. Plans may be seen, and specifications, etc., obtained, on payment of 1*l.* 1*s.* (by cheque only), from Mr. R. Williams-Jones, Assoc.Inst.S.E., M.I.Mun.E., County Surveyor (Western District), County Surveyor's Office, County Offices, Carmarthen.

FURNITURE, PAINTING, MATERIALS, etc.

JANUARY 30.—**Birkenhead.**—BRICKS, LIME, ETC.—The Corporation invite tenders for the supply and delivery of red bricks, Portland cement, castings, stoneware pipes, etc. Specifications, forms, and all particulars may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead.

FEBRUARY 1. — **Chelmsford.** — PAINTING.—The Standing Joint Committee of the Court of Quarter Sessions and C.C. invite tenders for painting and other work at Southminster Police-station, Latchingdon Old Police-station, Springfield Old Court. Specifications for the two former can be seen upon application at the respecive stations, and all the specifications can be seen upon application to Mr. F. Whitmore, County Architect, 73, Duke-street, Chelmsford.

FEBRUARY 1.—**Hackney Wick, N.E.**—PAINTING.—The Guardians invite tenders for the external painting of their casual wards, etc., at Gainsborough-road. Specifications, etc., can be obtained at the Guardians' Offices, Sidney-road, Homerton.

FEBRUARY 2.—**Belfast.**—RAILWAY STORES.—Midland Railway Company, Northern Counties Committee (Ireland), invite tenders for the supply of material during the ensuing year. Patterns and samples can be inspected on application to the General Stores Department, Belfast, and forms can be obtained on application to Mr. Ellis, Stores Superintendent, York-road Station, Belfast, on prepayment of 6d. for each form.

* FEBRUARY 2. — **London, E.** — PAINTING AND REPAIRS.—The Guardians of St. George in the East invite tenders for repairs and painting at Relief Offices and Dispensary, 28, Cannon-street-road, E. See advertisement in this issue for further particulars.

FEBRUARY 2. — **Manchester.**—PAINTING.—The Parks Committee invite tenders for painting at various gardens, etc., Withington. Specifications may be obtained at the office of the City Architect, Town Hall.

* FEBRUARY 6. — **Hendon.** — WORKS AND MATERIALS.—The Hendon U.D.C. invite tenders for execution of works and supply of materials for one year from April 1 next. See advertisement in this issue for further particulars.

* FEBRUARY 7.—**London.**—GYMNASTIC APPARATUS.—The London C.C. invite tenders for supply and fixing of gymnastic apparatus. See advertisement in this issue for further particulars.

* FEBRUARY 7. — **London.** — MATERIALS.—The London C.C. invite tenders for supply and delivery of Portland cement, Thames ballast, bricks, lime, sand, Bangor slates, stoneware pipes, etc. See advertisement in this issue for further particulars.

FEBRUARY 8. — **Cambridge.** — PAINTING.—The Corporation invite tenders for carrying out certain internal painting in the Guildhall. Specification may be seen at the office of the Borough Surveyor, Guildhall.

* FEBRUARY 11.—**Chelmsford.**—IRON FENCING AND GATES.—The Chelmsford Education Committee invite tenders for supply and delivery of iron fencing and gates. See advertisement in this issue for further particulars.

FEBRUARY 13.—**Belfast.**—RAILWAY STORES.—The Directors of the Belfast and County Down Railway Company invite tenders for the supply of stores. Samples and patterns can be seen on application to the Storekeeper, Belfast Terminus.

* FEBRUARY 14.—**Bromley, Kent.**—MATERIALS, STORES, ETC.—The Bromley B.C. invite tenders for supply of various materials and stores. See advertisement in this issue for further particulars.

FEBRUARY 16. — **Richmond, Surrey.** — STORES AND WORK. — The T.C. invite tenders for the supply of road materials, Portland cement, etc., also bricklayers', etc., work. Form of tender and further particulars may be obtained from Mr. J. H. Brierley, Borough Surveyor.

FEBRUARY 21.—**Leeds.**—BUILDING MATERIALS.—The Corporation invite tenders for the supply of building materials, etc., required for the Electric Lighting Department. Schedules, etc., may be had on application to Mr. H. Dickinson, Manager of the Electric Lighting Department, 1, Whitehall-road, Leeds.

ROADS, SANITARY, AND WATER WORKS.

JANUARY 30.—**Birkenhead.**—ROAD AND PAVING MATERIAL.—The Corporation invite tenders for the supply of kerbs and channels, Penmaenmawr breaking stone, flags, and creosoted red deal paving blocks. Specifications, etc., may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead.

FEBRUARY 1.—**Leigh, near Tonbridge.**—SEWAGE WORKS.—The R.D.C. of Sevenoaks invite tenders for the construction of sewage works. Drawings, etc., may be inspected, and quantities, with forms, obtained, at the office of the Engineer, Mr. Thomas Hennell, Parliament-mansions, Victoria-street, Westminster, or at that of Mr. F. H. Vibert, Clerk of the Council, Bank-chambers, Sevenoaks, on payment of 1*l.* 1*s.*

FEBRUARY 1.—**Surbiton.**—ROAD MATERIAL, ETC.—The U.D.C. invite tenders for the supply of granite, lime, Portland cement, granite paving setts, etc. Specifications and forms may be obtained on application to Mr. Henry T. Mather, Surveyor to the Council, Council Offices, Surbiton, between 10 a.m. and 1 p.m.

FEBRUARY 3.—**Brackley.**—GRANITE AND SLAG.—The R.D.C. invite tenders for the supply of about 2,400 tons of the best Hartshill or other granite; also about 500 tons of slag. Specifications, form, and any further particulars may be obtained of Mr. H. Pickering, District Surveyor, Helmdon, Brackley.

FEBRUARY 3.—**Grimsby.**—ROAD MATERIAL, ETC.—The Corporation invite tenders for the supply of macadam, drainage pipes, flags (artificial), setts, kerbs, etc. Specifications, forms, and all requisite information, may be obtained at the office of Mr. H. Gilbert Whyatt, A.M.Inst.C.E., Borough Engineer and Surveyor, Municipal-buildings, 170, Victoria-street, Grimsby. Applications to be accompanied by addressed foolscap envelopes (unstamped).

FEBRUARY 3.—**Manchester.**—PAVING WORK, ETC.—The Withington Committee invite tenders for the several works required in draining, kerbing, flagging, and paving certain streets and passages at Withington. Plans, etc., can be seen, and a form, with quantities, and any further information obtained, from the Surveyor to the Committee, Town Hall, West Didsbury.

FEBRUARY 4.—**Slough.**—ROAD MATERIAL, ETC.—The U.D.C. invite tenders for the supply and delivery of stoneware pipes and gullies, Portland cement, prepared tarred granite or macadam, etc. Particulars and forms may be obtained, and samples inspected, at the Town Surveyor's Office, William-street, Slough.

FEBRUARY 6.—**Bury.**—ROAD MATERIAL, ETC.—The Corporation of Bury invite tenders for the supply during the year of earthenware pipes, etc. Specifications may be had of Mr. Arthur W. Bradley, Assoc.M.Inst.C.E., Borough Engineer and Surveyor.

ROADS, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 6.—**Dorking.**—ROAD MATERIAL.—The R.D.C. invite tenders for the supply of granite, granite chippings, and tarred macadam for the year. Forms, with full particulars, will be furnished on application to Mr. Wm. Rapley, jun., Surveyor to the Council, Town Hill, Dorking.

FEBRUARY 6.—**Downham Market.**—GRANITE AND GRAVEL.—The R.D.C. invite tenders for the supply for one year of broken granite, slag, slag, and broken gravel. Form can be obtained of Mr. H. R. B. Wayman, Clerk to the Council, Council Offices, Downham Market.

* FEBRUARY 6.—**London, S.E.**—ROAD-MAKING.—The Camberwell B.C. invite tenders for kerbing, foundations for asphalt paving, and pitched roadway in Bachelor's Hall-place, Peckham. See advertisement in this issue for further particulars.

FEBRUARY 6.—**North Berwick.**—WATER PIPES.—The Corporation invite tenders for cutting tracks, laying, etc., about 4¼ miles of 8-in. cast-iron pipes (with relative works) between Garvald and Whittingehame mains, and between Newbyth mains and Heugh filters. Plans may be seen, and specification, etc., obtained, at the office of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72a, George-street, Edinburgh, on payment of 1*l.*

FEBRUARY 6. — **Reigate.** — ROAD MATERIAL, BRICKS, ETC.—The R.D.C. invite tenders for the supply for one year of road materials, bricks, cement, stoneware pipes, etc. Forms may be obtained on application to the Surveyor, Mr. Arthur J. Head, 48, High-street, Reigate, Surrey.

FEBRUARY 6.—**Retford.**—GRANITE AND SLAG.—East Retford R.D.C. invite tenders for the supply of broken granite and slag required for one year. Forms of tender, etc., will be sent by Mr. Thomas Henry, Surveyor, Surveyor's Office, Retford, Notts, upon receipt of a stamped, addressed, foolscap envelope.

FEBRUARY 7.—**Escrick.**—ROAD MATERIAL.—The Escrick R.D.C. (East Riding of Yorkshire) invite tenders for the supply of best whinstone, tar-macadam, slag, and granite, all broken. Forms of tender can be obtained of Mr. Fred. A. Camidge, Clerk to the Council, 3, Stonegate, York, on receipt of stamped addressed brief envelope.

FEBRUARY 7.—**Lewes.**—ROAD MATERIAL.—East Sussex C.C. invite tenders for the supply of and delivery of road metal, gullies, pipes, timber, etc. Forms of tender and all necessary materials, etc., for the maintenance of the main roads in the west, south, central, and east districts of the county, for one year. Further particulars can be obtained on application to Mr. F. J. Wood, Assoc.M.Inst.C.E., County Surveyor, County Hall, Lewes.

FEBRUARY 7. — **Middlesbrough.** — WHINSTONE AND LIMESTONE.—The R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for the year. Further particulars and forms may be obtained on application to Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, S.O., or to Mr. Wm. Richardson, Clerk (for highway purposes), Stokesley, S.O., Yorkshire.

FEBRUARY 8. — **Hurst.** — STREET WORKS.—The U.D.C. invite tenders for sewering, excavating, metalling, paving, and otherwise completing a number of streets in the district. Specifications, etc., may be seen, and quantities, etc., obtained, at the Council Offices, King-street, Hurst, where all information respecting the same may be obtained from the Surveyor, Mr. Samuel Shirt. A fee of 1*l.* 10s. will be charged for the quantities.

FEBRUARY 8.—**Kingston-upon-Thames.**—ROAD WORKS.—The Corporation invite tenders for works in Chesfield-road and a portion of Park-road. Plans, etc., prepared by the Borough Surveyor, Mr. R. Hampton Clucas, which can be seen at his office, Municpal Offices, where forms can be obtained.

FEBRUARY 8.—**Woolwich.**—ROAD MATERIAL.—The B.C. invite tenders for the supply of road material. Forms and further particulars can be obtained at the office of Mr. J. Rush Dixon, M.Inst.C.E., Borough Engineer, Town Hall, Woolwich.

FEBRUARY 9. — **Stokesley.** — WHINSTONE AND LIMESTONE.—The R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for one year. Further particulars and forms may be obtained on application to Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, S.O., or to Mr. Wm. Richardson, Clerk to the Council, Stokesley, S.O., Yorkshire.

* FEBRUARY 13.—**London, S.W.**—MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving new streets. See advertisement in this issue for further particulars.

FEBRUARY 13.—**Southgate.**—ROAD MATERIAL, ETC.—The U.D.C. invite tenders for the supply and delivery of road materials, cartage of broken granite and flints, etc., paving materials, etc. Specifications, forms, and any other particulars may be obtained on application to Mr. C. G. Lawson, C.E., the Council's Surveyor, Council Offices, Palmer's Green, N.

FEBRUARY 14. — **Doveridge.** — SEWERAGE AND SEWAGE DISPOSAL.—The R.D.C. of Sudbury invite tenders for the provision, laying, etc., of stoneware pipe sewers, together with manholes and lampholes; also the construction of liquefying tanks, bacteria beds, and other incidental works. Drawings, etc., may be seen, and quantities and form obtained, at the offices of the engineers, Messrs. Willcox and Raikes, 63, Temple-row, Birmingham, on deposit of 3*l.* 3s.

FEBRUARY 15.—**Bradford.**—ROAD MATERIAL.—The Corporation invite tenders for the supply information may be obtained on application at the office of Mr. W. H. S. Dawson, City Engineer and Surveyor, at the Town Hall.

FEBRUARY 15. — **Folkestone.**—ROAD MATERIAL, ETC.—The Corporation of Folkestone invite tenders for the supply of road material, etc., for the period of one year. Particulars and forms may be obtained on application to Mr. A. E. Nichols, M.Inst.C.E., Borough Engineer, Corporation Offices, Folkestone.

FEBRUARY 15.—**Frome.**—STORES.—The U.D.C. invite tenders for the supply of cement, granite, limestone, paving materials, etc. Particulars and forms may be obtained upon application to Mr. F. W. Jones, Assoc.M.Inst.C.E., Surveyor to the Council, the Public Offices, Frome.

FEBRUARY 15.—**Haslingden.**—SEWAGE WORKS.—The T.C. invite tenders for the construction of underground sewage storage wells, and other works. Plans, etc., may be obtained at the office of Mr. J. Singleton Green, Borough Engineer, Municipal Offices.

FEBRUARY 15.—**Uckfield.**—ROAD MATERIAL.—The R.D.C. invite tenders for the supply of broken granite, broken Kentish ragstone, etc. Particulars may be obtained from Mr. E. W. Ray-Johnson, Highway Surveyor, Surveyor's Office, Buxted, Sussex, and will be forwarded on receipt of stamped addressed envelope.

FEBRUARY 18.—**Canterbury.**—MATERIAL FOR ROADS.—The Roads and Survey Committee invite tenders for the supply and delivery of road material, stoneware pipes, etc. Forms of tender, etc., may be obtained on application to Mr. Arthur C. Turley, Assoc.M.Inst.C.E., City Engineer and Surveyor, City Surveyor's Office, Guildhall-street, Canterbury.

FEBRUARY 21.—**Bethersden, Kent.**—SEWERAGE AND SEWAGE DISPOSAL.—The West Ashford R.D.C. invite tenders for laying two miles of sewer, and the construction of sewage purification works. Drawings, etc., may be seen, and forms obtained, at the Office of the R.D.C., No. 17, Bank-street, Ashford, Kent, or that of Mr. Arthur J. Martin, M.Inst.C.E., F.G.S., 7, Victoria-street, Westminster, on deposit of 3*l.* 3s.

FEBRUARY 21.—**Southall.**—ROAD MATERIALS, ETC.—The Southall-Norwood U.D.C. invite tenders for the supply of road materials, etc. Forms and particulars can be obtained from Mr. Reginald Brown, A.M.Inst.C.E., F.S.I., etc., Engineer and Surveyor, Public Offices, Southall.

FEBRUARY 24. — **Northallerton.**—RESERVOIR.—The U.D.C. invite tenders for the construction of a valley reservoir, approach road, conduits, iron bridges, tower, and other works in connexion therewith, situated in the Oakdale Valley. Contract "B," comprising the reservoir and other works; Contract "C 2," for the supply of the whole of the ironwork. Plan, etc., may be seen, and quantities, etc., obtained, at the office of the Engineer, Mr. Alfd. M. Fowler, M.Inst.C.E., F.S.I., 1, St. Peter's-square, Manchester, to February 7, and at office in Northallerton of Mr. W. Fowle, Clerk to the Council, from February 8 to 17, on deposit of 5*l.*

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*CLERK OF WORKS	Caterham U.D.C.	3*l.* per week	Feb. 1
*ARCHITECT	C.B. of Swansea & Mer. Tydfil	Not stated	Feb. 15

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BUILDING SITE, OLD BAILEY, E.C.—At the Mart	W. B. Hallett	Feb. 24
*MACHINERY AND PLANT, 281, BATTERSEA-PARK-ROAD, S.W.—On the Premises	Harold Griffin	Feb. 15
*FREEHOLD BUILDING PROPERTY, FINCHLEY AND OAKLEIGH PARK—At the Mart	Edwin Fox, Bousfield, Burnetts, & Baddeley	Mar. 1

PATENTS—*Continued from page 123.*

15,650 of 1910.—Andor Tarján: Hinges for doors and windows.

15,962 of 1910.—François Bosc: Fillings or coverings for iron and steel floors.

16,028 of 1910.—Heinrich Johann Harms, jun., and George Eldridge Small: Process for the manufacture of liquid concrete.

16,166 of 1910.—Heinrich Johann Harms, jun., and George Eldridge Small: Construction of concrete houses.

22,763 of 1910.—Thomas Sanders: Extensible stays for casements.

24,160 of 1910. — Frederick William Schroeder: Jointed pipes.

SOME RECENT SALES OF PROPERTY: ESTATE EXCHANGE REPORT.

January 17.—By ORGILL, MARES, & BARLEY.

Bethnal Green.—Thirty-two freehold and leasehold licensed houses, etc., in connexion with Chandlers Wiltshire Brewery	£36,550
Hammersmith.—118, Blythe-rd., f.	380
Canning Town.—34 and 36, Nelson-st., f.	120
107, Victoria Dock-rd., f.	140

January 18.—By ARTHUR SINGLE.

Forest Gate.—92, Earlham-gr., u.t. 490 yrs., g.r. 6*l.*, y.r. 32*l.*	320
109, Earlham-gr., u.t. 490 yrs., g.r. 7*l.*, y.r. 35*l.*	330
Stratford.—11 to 31 (odd), Beddingfield-st., 9 to 25 (odd), 10 to 26 (even), Thornham-gr., also l.g. rents 59*l.* 8s., u.t. 6 yrs., g.r. 50*l.*, w.r. 549*l.* 18s.	£750
8, Hamfrith-rd., u.t. 63 yrs., g.r. 6*l.*, w.r. 32*l.* 10s.	195
Wanstead.—72, George-la. (s.), f., w.r. 31*l.* 4s.	200

By NOYS & HOWES (at Deptford).

Deptford.—103, Tanner's-hill (s.), u.t. 26¾ yrs., g.r. 2*l.*, w.r. 27*l.* 6s.	122

January 19.—By WOODS & SNELLING.

Dulwich.—4, Muschamp-rd., u.t. 65 yrs., g.r. 7*l.*, y.r. 32*l.*	270
Camberwell.—23, 23A, 23B, 25, 25A, 25B, Southampton-st., u.t. 80 yrs., g.r. 10*l.*, w.r. 158*l.* 12s.	700
Camden Town.—117 and 118, Park-st. (s.), u.t. 12¾ yrs., g.r. 15*l.*, y.r. 117*l.*	450
Regent's Park.—24, Albany-st., u.t. 11¾ yrs., g.r. 4*l.* 4s., y.r. 55*l.*	310

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shop; ct. for court.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	12	0
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.
Flettons	1	8	0
Best Fareham Red	3	12	0
Best Red Pressed Ruabon Facing	5	0	0
Best Blue Pressed Staffordshire	3	15	0
Do. Bullnose	4	0	0
Best Stourbridge Fire Bricks	3	14	0

GLAZED BRICKS.

	£	s.	d.
Best White and Ivory Glazed Stretchers	10	17	6
Headers	10	7	6
Quoins, Bullnose, and Flats	14	7	6
D'ble Stretchers	16	7	6
Double Headers	13	7	6
One Side and two Ends	17	7	6
Two Sides and one End	18	7	6
Splays & Squints	15	17	6
Best Dipped Salt Glzd. Str'tch'rs	10	17	6
Headers	10	7	6
Quoins, Bullnose, and Flats	14	7	6
D'ble Stretchers	16	7	6
Double Headers	13	7	6
One Side and two Ends	17	7	6
Two Sides and one End	18	7	6
Splays & Squints	15	17	6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	6	6	per yard, delivered.
Thames Ballast	5	0	" "
Best Portland Cement	20	0	per ton, "
Best Ground Blue Lias Lime	19	0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

BATH STONE—delivered on road waggons, Paddington Depôt ..... s. 1, d. 6½
Do. do. delivered on road waggons, Nine Elms Depôt 1 8½

PORTLAND STONE (20 ft. average)—
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf 2 1
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf 2 2½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	8
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.* s. 2, d. 10
Per Ft. Cube, Delivered at Railway Depôt.
Scappled random blocks

Per Ft. Super., Delivered at Railway Depôt.

	s.	d.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—
Per Ft. Cube, Delivered at Railway Depôt.
Scappled random blocks 3 0

Per Ft. Super., Delivered at Railway Depôt.

	s.	d.
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	50	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	47	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	50	0
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz.)	3	6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0 ...	15	10	0
Deals: best 3 by 9	13	10	0 ...	14	10	0

WOOD (*continued*).

BUILDING WOOD (*continued*)—	At per standard. £	s.	d.	£	s.	d.
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0 ...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less thn best.		
Battens: seconds	0	10	0	"	"	
2 in. by in. and 2 in. by 6 in.	9	10	0 ...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0 ...	10	0	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0 ...	5	10	0
Seconds	4	10	0 ...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6 ...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0 ...	3	10	0
Swedish balks	2	12	6 ...	3	0	0
Pitch-pine timber (30 ft. average)	4	10	0 ...	5	5	0

JOINERS' WOOD.	At per standard. £	s.	d.	£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0 ...	25	10	0
3 in. by 9 in.	22	10	0 ...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0 ...	18	0	0
Second yellow deals, 3in. by 11 in.	19	0	0 ...	20	0	0
" " 3 in. by 9 in.	18	0	0 ...	19	10	0
Battens, 2½ in. and 3in. by 7 in.	14	0	0 ...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0 ...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0 ...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0 ...	22	10	0
Do. 3 in. by 9 in.	18	10	0 ...	19	10	0
Battens	14	0	0 ...	15	0	0
Second yellow deals, 3 in. by 11 in	16	10	0 ...	17	10	0
Do. 3 in. by 9 in.	15	0	0 ...	16	0	0
Battens	11	10	0 ...	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0 ...	14	10	0
Do. 3 in. by 9 in.	13	0	0 ...	14	0	0
Battens	10	10	0 ...	11	0	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	15	0	0 ...	16	0	0
" " 3 in. by 9 in.	14	0	0 ...	14	10	0
Battens	11	10	0 ...	12	10	0
Second white deals, 3in. by 11in.	14	0	0 ...	15	0	0
" " 3 in. by 9 in.	13	0	0 ...	14	0	0
Battens	10	10	0 ...	11	0	0
Pitch-pine: deals	19	0	0 ...	21	0	0
Under 2 in. thick extra	0	10	0 ...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	"		
Seconds, regular sizes	33	0	0	"		
Oddments	28	0	0	"		
Kauri Pine—Planks, per ft. cube.	0	3	6 ...	0	5	0
Danzig and Stettin Oak Logs— Large, per ft. cube	0	3	0 ...	0	3	9
Small " "	0	2	6 ...	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6 ...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½ ...	0	0	9½
¼ in. do. do.	0	0	7 ...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10 ...	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6 ...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10 ...	0	1	0
Teak, per load	18	0	0 ...	22	0	0
American Whitewood planks, per ft. cube	0	4	0 ...	0	5	0

Prepared Flooring, etc.— Per square.

1 in. by 7 in. yellow, planed and shot	0	13	6 ...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0 ...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0 ...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0 ...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6 ...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0 ...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0 ...	0	13	6
1 in. by 7 in. " "	0	14	0 ...	0	18	6
¾ in. by 7 in. white " "	0	10	0 ...	0	11	0
1 in. by 7 in. " "	0	12	9 ...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d	£	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0 ...	7	10	0
Compound Girders, ordinary sections	9	0	0 ...	10	0	0
Steel Compound Stanchions	11	0	0 ...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0 ...	10	0	0
Flitch Plates	9	0	0 ...	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0 ...	8	10	0

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON— Common Bars	8	10	0 ...	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0 ...	9	5	0
Staffordshire "Marked Bars"	10	10	0 ...		—	
Mild Steel Bars	8	15	0 ...	9	5	0
Hoop Iron, basis price	9	5	0 ...	9	10	0
" " Galvanised	17	0	0 ...		—	

(*And upwards, according to size and gauge.)

Sheet Iron Black— Ordinary sizes to 20 g.	9	15	0 ...		—	
" " 24 g.	10	15	0 ...		—	
" " 26 g.	12	5	0 ...		—	
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0 ...		—	
Ordinary sizes to 22 g. and 24 g.	15	10	0 ...		—	
" " 26 g.	16	10	0 ...		—	
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	0	0 ...		—	
" " 22 g. and 24 g.	18	10	0 ...		—	
" " 26 g.	20	0	0 ...		—	

METALS (*continued*).

	Per ton, in London. £	s.	d.	£	s.	d.
Galvanised Corrugated Sheets— Ordinary sizes, 6ft. to 8ft. 20 g.	14	10	0 ...		—	
" " 22 g. and 24 g.	14	15	0 ...		—	
" " 26 g.	16	5	0 ...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0 ...		—	
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0 ...		—	
" " " 26 g.	15	0	0 ...		—	
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	10	10	0 ...	11	0	0

LEAD, &c.

	Per ton, in London. £	s.	d.	£	s.	d.
LEAD—Sheet, English, 4lb. and up	16	10	0 ...		—	
Pipe in coils	17	0	0 ...		—	
Soil pipe	20	0	0 ...		—	
Compo pipe	20	0	0 ...		—	
ZINC—Sheet—	In casks of 10 cwt.					
Vielle Montagne	31	5	0 ...		—	
Silesian	30	15	0 ...		—	
Zinc, in bundles, 1s. per cwt. extra.						
COPPER— Strong Sheet per lb.	0	1	0 ...		—	
Thin " "	0	1	1 ...		—	
Copper nails "	0	0	10 ...		—	
Copper wire "	0	0	10 ...		—	
BRASS— Strong Sheet "	0	0	11 ...		—	
Thin "	0	1	0 ...		—	
TIN—English Ingots "	0	1	11 ...		—	
SOLDER—Plumbers' "	0	0	8 ...		—	
Tinmen's "	0	0	10 ...		—	
Blowpipe "	0	1	1 ...		—	

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
23 oz. thirds	4½d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

⅛ Hartley's	2d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic Muffled and Rolled Cathedral, white	3½d.
¼ "	2½d.	Ditto, tinted	5d.
½ "	2½d.		

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	4	0
" " " in barrels	"	0	4	1
" " " in drums	"	0	4	3
Boiled " in barrels	"	0	4	3
" " " in drums	"	0	4	6
Turpentine in barrels	"	0	4	10
" in drums	"	0	5	0
Genuine, Ground English White Lead,	per ton	21	0	0
Red Lead, Dry	"	20	0	0
Best Linseed Oil Putty	per cwt.	0	10	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Plating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100l. unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABBOTS LANGLEY.—For private street works in Abbots-road, for the Watford Rural District Council. Mr. Ernest Lailey, Surveyor, Market-street, Watford. Quantities by Surveyor:—

H. Elliot & Co.	£3,620 14 0	G. Pitkin	£3,200 0 0
Free & Sons	3,387 19 6	G. R. Mann	3,096 7 0
F. P. Bliss	3,373 0 10	G. Jaggard, Bushey	2,950 0 0
W. Wright	3,342 11 0		
Bracey & Clarke	3,300 0 0		

[Surveyor's estimate, £3,331.]

BARKBY (Leicester). — For iron fencing, gates gravel paths, etc., at the new cemetery, for Barkby and Barkby Thorpe Joint Burial Authority. Mr. Cecil Ogden, architect, 4, Welford place, Leicester :—

J. H. Hall	£198 0 0	Burbidge & Co.	£172 15 6
J. B. Agar	193 0 0	Stimpson & Rollston	172 9 2
E. L. Jones	191 19 0	J. T. Ball	160 10 0
J. Hutchinson	181 10 0	E. Frisby	158 0 0
A. E. Palmer	180 0 0	F. Sleath, Rothley*	155 10 3
J. Moore & Sons	178 10 0		
A. Jewel	173 3 4		
R. C. Searl & Co.	172 19 6		

BRENTFORD.—For repairs at Clifden House, for the Urban District Council, Mr. J. W. Croxford, Surveyor :—

G. Wells	£335	G. Challis, Brentford*	£223
H. E. Stocking	330		

BRIGHTON.—For (a) the repair, painting, etc., of the external portions of the arches on the King's-road, Grand Junction-road, etc.; (b) painting the gas, electric light, and water pillars, and seats, etc., in No. 3 District, for the Town Council. Mr. Harry Tillstone, Borough Surveyor :—

A. Contract.

G. Burrage	£433 0 0
J. & W. Simmonds	428 0 0
Cates & Sons, 1, North-road, Brighton*	407 10 0

B. Contract.

G. Burrage	£325 0 0
J. & W. Simmonds	190 0 0
Gates & Sons, 1, North-road, Brighton*	133 15 0

GRANTHAM.—For the rebuilding of the "Spotted Cow" Hotel, London-road, for Messrs. Warwicks & Richardsons, Ltd., Newark. Messrs. Sheppard & Lockton, architects and surveyors :—

Rudd & Son, Ltd.	£1,738 0 0	J. Wright & Co.	£1,595 0 0
Hockley & Co.	1,716 13 3	W. Smith	1,497 0 0
F. Read	1,596 0 0	G. Brown & Sons, Newark*	1,480 0 0

HEREFORD.—For the erection of iron shedding and cattle sale ring in the Cattle Market, for the Corporation. Mr. John Parker, City Surveyor :—

Alexander & Duncan, Leominster* £497 10

HIGHAMS PARK.—For proposed new road (Malvern-avenue), Highams Park, Walthamstow, N. Messrs. Stanley, Parkes, & Brown, surveyors :—

J Dunmore	£1,042 12 7	Grounds & Newton	£942 19 1
S. Kavanagh & Co	987 5 8	W. & C. French	827 16 1
E. T. Bloomfield	970 18 8	E. Knifton, Edmonton*	813 15 11

LONDON.—For the erection of a bandstand at Ruskin Park, for the London County Council :—

	With Exposed Woodwork in Oak.	Painted Pitch-Pine.
F. Pike	£569 0 0	£519 0 0
R. Harding & Son	524 0 0	474 0 0
R. A. Lowe & Co.	487 0 0	457 0 0
E. Jackson	470 13 0	453 17 0
F. & G. Foster	467 0 0	444 0 0
J. & C. Bowyer, Ltd.	467 0 0	432 0 0
W. Bickerton	425 0 0	410 0 0
J. Barker & Co.	385 0 0	360 0 0

[The Architect's estimate for the erection of the bandstand, with exposed woodwork in oak, amounts to £452.]

PRESTON.—For levelling, paving, etc., and making good Calverley-street, for the Corporation. Mr. Thomas Cookson, A.M.Inst.C.E., Borough Engineer :—

	Salisbury-street.	Calverley-street.
W. Gregson	£332 15 4	£327 7 4
J. B. Chadwick	280 16 10	277 5 5
R. Bashall	266 7 4	263 8 0
J. Moxham & Son, Brackenbury-street, Preston*	264 0 8	260 16 1

PITSEA.—For new Council School, Pitsea, for the Essex Education Committee. Mr. Frank Whitmore, Architect, Chelmsford :—

Milton Bros.	£4,121 8 11	F. & E. Davey	£3,683 0 0
R. Woollaston & Co.	3,995 0 0	E. Pavitt & Sons	3,670 11 7
A. Gayford	3,955 0 0	F. Willmott	3,637 0 0
A. E. Tong	3,911 0 0	G. Brown	3,630 1 6
Kidman Bros.	3,909 0 0	F. W. Jarvis	3,612 0 0
Dowsing & Davis	3,865 0 0	J. Strong & Sons	3,608 19 0
B. E. Nightingale	3,844 0 0	H. Potter & Son	3,783 2 6
P. R. Paul	3,838 0 0	F. W. Burtwell	3,547 0 9
J. E. Whiter & Co.	3,833 0 0	T. J. Bailey	3,547 0 0
J. & M. Patrick	3,808 0 0	A. H. Fryd	3,537 0 0
Vail & Shore	3,792 10 6	Hammond & Son	3,491 0 0
E. & B. H. Davey	3,780 0 0	Brown Bros., Grays‡	3,422 2 0

‡ Recommended for acceptance.
[Architect's estimate, £3,589.]

SOUTHAMPTON.—For alterations to "F" Warehouse, Town Quay, for the Harbour Board. Mr. E. Cooper Poole, A.M.Inst.C.E., Engineer to the Board :—

H. Stevens & Co.	£250 0 0	J. Franklin & Co., Ltd.	£237 0 0
J. Douglas	249 10 5	J. Nichol*	222 0 0
Jenkins & Sons, Ltd.	237 0 0		

[All of Southampton.]

STANWAY.—For erecting elementary school at Stanway, Essex, for the Lexden and Winstree District Committee, for the accommodation of 260 children and self-contained assembly hall. Mr. J. W. Start, F.S.I., Architect, Colchester. Quantities by Mr. J. B. H. Low, Chelmsford :—

	Schools.	Playsheds.
W. H. Gladwell	£3,738 0 0	£260 0 0
G. Kenny	3,725 0 0	230 0 0
W. Chambers	3,697 0 0	237 0 0
F. Bennell	3,675 0 0	220 0 0
A. Gayford	3,648 0 0	215 0 0
T. J. Ward	3,610 0 0	215 0 0
P. R. Paul	3,579 0 0	207 0 0
Dobson & Son	3,492 0 0	230 0 0
W. C. Theobald	3,475 0 0	250 0 0
Everett & Son	3,450 0 0	220 0 0
H. Smith	3,426 0 0	205 0 0
Smith & Son	3,426 0 0	215 0 0
Mason & Son	3,400 0 0	180 0 0
Parkington & Son	3,300 0 0	200 0 0
R. Beaumont	3,299 0 0	212 10 0
E. Saunders	3,244 0 0	198 0 0
C. Deaves, Bures*	3,196 0 0	198 0 0

THURNSCOE.—For carrying-out private street works in George-street, Thurnscoe East, for the Urban District Council. Mr. R. Higginbottom, Surveyor :—

S. Porter	£1,090 0 0	H. Roberts, Gainsbro'*	£836 0 0
S. Drake & Sons	1,056 0 0	C. Green's Sons	810 0 0
W. Guest	979 14 0	T. Gray & Sons	776 0 0
E. E. Dickinson	904 0 0	F. Eyre	726 18 1
R. Hann	850 0 0		

TREFOREST.—For constructing roads and surface-water drains on the Lewistown Estate, for Mr. J. Windsor Lewis. Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd. Quantities by architects :—

G. Davies	£1,475 18 0	Smith, Jones, & Sons	£1,200 0 0
T. Walker	1,363 3 5	J. Sutherland	1,170 13 0
Makay & Davies	1,329 0 11	G. Collins	1,154 1 1
J. Guys	1,273 2 4½	H. Murray	1,150 0 0
G. L. Morgan	1,267 2 6	K. Webb & Sons, Abercynon*	1,066 17 4½
H. Hames	1,234 13 6		
R. Jones	1,228 19 4		
B. Chaplin	1,217 15 0		

WALTHAMSTOW.—For the erection of a new block of out-offices, removal of existing offices, new iron fencing, and sundry other works at girls' school, Highamhill, for the Education Committee. Mr. H. Prosser, M.S.A., Architect to the Committee :—

Harston & Co.	£272 10 0	F. W. Dainton	£239 0 0
Lown & Co.	267 18 0	Wood Bros.	224 17 6
J. Sands	265 15 0	H. C. Horswill	224 0 0
Hammond & Son	260 0 0	J. & J. Dean	215 0 0
R. & E. Evans	243 0 0	G. M. Page, Walthamstow‡	215 0 0
F. J. Coxhead	239 0 0		

‡ Recommended for acceptance.

WALTHAMSTOW.—For the provision and erection of about 1,250 ft. run of wrought iron unclimbable fencing, with dwarf wall to frontage portion, with gates, pillars, and sundry work, on the Lingfield-avenue site, for the Education Committee. Mr. H. Prosser, M.S.A., Architect to the Committee :—

Wood Bros.	£516 17 6	Hammond & Son	£490 0 0
G. M. Page	500 0 0	J. Sands	450 0 0
F. J. Coxhead	498 0 0	H. C. Horswill	429 0 0
R. & E. Evans	476 0 0	J. & J. Dean, Walthamstow‡	422 0 0
J. Couper	475 13 6		

‡ Recommended for acceptance.

WASHINGTON.—For making-up private streets, for the Chester-le-Street Rural District Council. Mr. George W. Ayton, Highway Surveyor :—

—	Lot 1. Washington.	Lot 1. Harraton.	Drain for Highways.
	£ s. d.	£ s. d.	£ s. d.
G. E. Simpson, Newcastle	*2,784 17 7	*423 14 4	153 9 6
J. Carrick	2,924 19 3	451 2 9	134 15 3
G. Armstrong	2,945 16 9	458 6 10	126 17 6
J. W. White	3,078 0 0	457 0 0	157 0 0
J. J. Robson	3,090 3 3	524 6 0	137 11 6
R. Fisher	3,118 17 4	490 18 3	150 3 3
H. Ellison, Ltd.	3,130 17 4	500 0 0	193 0 6
J. W. Henderson	3,200 0 0	481 2 11	128 11 8
R. Hadfield, Ltd.	3,976 15 0	578 16 0	154 0 0
R. Hudson & Sons, Sunderland	—	—	*124 18 6

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